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The

BLUE JAY

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FOR SASKATCHEWAN AND ADJACENT REGIONS

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Saskatchewan Government Photo

The Churchill, one of the World's last unpolluted rivers

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PARKS AND THE PEOPLE

Too often in the past major decisions regarding the disposal of natural resources and the future of Canada have been made without consultation with the people. But this year Canadians are being given the opportunity to participate in environmental planning. We hope that the recent public hearings on national parks mark the beginning of a new era in which we, as Canadians, will be prouder of our resources and will consider long-term good rather than short-term selfish interests.

Many of the briefs presented at the hearings quoted the succinct statement in the National Park Act which reads:

> "The Parks are hereby dedicated to the people
> of Canada for their benefit, education and
> enjoyment . . . and such Parks shall be maintained
> and made use of so as to leave them unimpaired
> for the enjoyment of future generations."

The key words, of course, are "leave them unimpaired for the enjoyment of future generations" and it was the business of the hearings to receive concrete suggestions as to how such an objective could best be realized. As a representative brief explaining the broad needs for parks and their places in Canadian life as well as many precise proposals relating to the Prince Albert National Park, we print in full the brief which was presented by Professor J. S. Rowe, Plant Ecologist of the University of Saskatchewan, Saskatoon Campus. We hope that *Blue Jay* subscribers will read Dr. Rowe's article carefully and thoughtfully. They should also read Mr. J. Wedgwood's précis of the Prince Albert public hearing and Miss M. Belcher's account of the presentations made in Regina. (In a later issue we shall attempt to bring readers up to date both on the preliminary report of the public hearings and also on the subsequent decisions of the National and Historic Parks Branch.)

The holding of such hearings has been, then, a positive step forward. And there are additional achievements to record. Three months ago we were able to report the establishment of the first Wilderness Area in Saskatchewan. Other provinces are also making significant progress in the protection of natural areas: British Columbia with its Ecological Reserves Act is leading the way; Alberta and New Brunswick have anti-litter and clean environment acts under consideration; Ontario has at last been successful in eliminating lumbering from some of her great Provincial Parks and is borrowing millions of dollars to build water treatment plants in an effort to reduce Canadian pollution of the Great Lakes. On the National Scene, the Honourable Jean Chrétien, Minister of Indian Affairs and Northern Development, has announced the formation of five new National Parks; consideration is being given to the formation of a grassland park in Saskatchewan as well as parks in the Yukon and North West Territories. As we go to press we hear that the Government of Saskatchewan is interested in preserving the cleanliness of the whole Churchill River System, possibly as an additional National Park. It is obvious that governments are now realizing the importance of protecting examples of each kind of ecosystem in Canada.

It is therefore essential that active involvement by concerned naturalists, amateur and professional alike, continue and continue vigorously. The first advances toward conservation have been made but only the participation of people can assure further progress.

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A BRIEF TO THE PUBLIC HEARINGS ON PRINCE ALBERT NATIONAL PARK

by **J. S. Rowe,** University of Saskatchewan, Saskatoon

1. INTRODUCTION

The Provisional Master Plan for Prince Albert National Park is an excellent one within the self-imposed limits of the planners. It appears to be firmly based on the commendable purpose set out in the booklet "National Parks Policy", viz. "to preserve for all time areas which contained significant geographical, geological, biological or historic features as a national heritage for the benefit, education and enjoyment of the people of Canada".

A criticism is that the policies are not as dynamic as these times of environmental crisis demand. Necessarily preoccupied with preservation, the planners have not perhaps recognized the challenge that a National Park and Wilderness network poses to misguided land use and the conventional "progress - through - development" philosophy. The idea of National Parks as comparable to museums or art galleries is good as far as it goes but, more profoundly, the National Parks can exemplify the "man - working - with - nature" theme, showing how the world ecosystems function and how man may fit harmoniously into them, rather than how they may be fitted to man's uses.

People today, especially the young, are seeking a new life pattern and this is largely a question of finding new social and ecological (environmental) relationships. "What", they are asking, "is a good environment, in the city, town and hinterland?" In handling enormous numbers of visitors, the parks are confronted with what are essentially urban population problems, while at the same time they must attempt to provide all visitors with a "nature experience" in a wilderness setting. Essentially, then, they are at grips with the central environmental questions of the day. In microcosm the Parks must solve the inter-related problems of population and carrying capacity, of pollution, growth and development, of land use and conservation. But, and this is uniquely important, they must solve them in such a way that the landscape is preserved in a natural state. In other words, in this particular context, man is to be controlled in the interests of maintaining other forms of life. The message is a new one: that humans and the humanized landscape are not all-important. A note of humility is struck which could be the beginning of wisdom.

2. COMMENTS ON THE NATIONAL PARKS POLICY

Park Master Plans are guided by the "National Parks Policy" as set out in the 1969 publication (Cat. No.: R62-6269). It is appropriate therefore to comment first on the "Policy" and then on the Prince Albert National Park Provisional Plan.

2.1 Categories of National Areas

The suggestion in the "Introduction" that there is a need for more than one class of national area is good. The National Parks will be subject to pressures for every conceivable use unless alternative areas are provided elsewhere. For example, until there are designated National Recreational Areas (as well as Provincial, Regional and Urban Recreation Areas) it will be difficult to resist giving up ever-larger parts of the National Parks to those mechanized and gregarious forms of recreation with which the preservation of nature co-exists uneasily if at all.

Close to the National Parks philosophy and purpose are *Natural Areas,* conceived as representative of the natural terrain. The scattered parks cannot possibly comprehend all the richness of the Canadian landscape; there needs to be a supplementary network of smaller ecological reserves

Saskatchewan Government Photo

Pine in boreal forest

that will protect examples of regional landforms, soils, flora and fauna. Such reserves, like the parks, have cultural and historical significance. They can be educational and research facilities, increasing man's awareness of the environment while providing aesthetic enjoyment.

The International Biological Program has sponsored an inventory of candidate Natural Areas in all regions of Canada over the last few years, and the results will be available in 1972. There should be consideration, cooperatively between the federal and provincial governments, of possibilities for integrating the system of Natural Areas with the Parks and other National Areas.

2.2 Purpose of National Parks

Concerning the policy statement of the purpose of National Parks, it is difficult to escape the biases and presuppositions of one's own time. A wiser future generation will perhaps argue that preserving the natural landscape is a good in itself, an ethical imperative that needs no justification by reference to human "use". To talk of National Parks as a "resource" that "is valuable to man only when he can utilize it" (*Policy*, p. 4) may be necessary to sell the idea today. However, in this approach there are dangers, particularly the implication that nothing matters but man, his needs and his favoured pursuits. The message is anti-ecological. It plays into the hands of those who will argue convincingly that if for example a majority of visitors want to fish, then fishing there will be. The argument against hunting is thereby weakened, and if hunting why not the removal of other resources?

The "benefit, education and enjoyment" of the people of Canada will best be served when the establishment and preservation of National Parks is seen as a far-sighted step toward a better environment, a reversal of the trend toward technologic simplification of the landscape, a preference for diversity and natural beauty, a change from the attitude that proclaims economic gain to be all that matters. In other words, the purpose of National Parks should be conceived in the context of the current ecological revolution. Nothing less will make them wholly relevant.

2.3 Recommendations concerning Parks Policy

2.3.1 It is essential that the National Parks be viewed within a Canada-wide (and world-wide) framework. The goals of the parks are not isolated from national (and international) goals, neither are they isolated from provincial and regional goals. The philosophy of *re-creation* lands must be inclusive and the roles of different categories of parks and other land uses should be rationalized and integrated. For example, the Prince Albert National Park plan should relate it to provincial and regional parks, to surrounding forest land uses, to national needs for the preservation of large wilderness areas.

2.3.2 It is essential that the interpretation programs of the National Parks be expanded so that the public (both visitors and non-visitors) will be exposed within the next few years to an understanding of the goals and potentialities of the National Parks. The current goals and methods of interpretation — chiefly relying on nature hikes, evening talks and museum displays—while useful do not go nearly far enough.

2.3.3 It is essential that research on the Parks, in the context of national and regional land use, be intensified on an inter-disciplinary basis, to provide sound ecological information and creative ideas for future development. Such research should involve top professionals in the fields of architecture, landscape planning, urban planning, the social sciences and humanities, as well as in the natural sciences. The aim should be the creation of a system of ideal environments, guided by the preservation ethic.

2.3.4 In order to gain broader support for the National Parks program and to involve people at the local level, Advisory Committees should be established with personnel from outside the government services. An Advisory Committee at the national level could usefully assist in the formulation of general policies, while Guiding Committees with regional representation could contribute to the local park policies. At present the National and Historic Parks Branch is handicapped by insufficient rapport with the public.

3. PRINCE ALBERT NATIONAL PARK PROVISIONAL MASTER PLAN

The Master Plan for Prince Albert National Park is very good. It shows a sensitivity to the policies of preservation. The following comments should be interpreted therefore as further encouragement of policies with which I am in agreement, and the proposals as means of introducing even greater consistency to the Plan.

3.1 The Need for more Parks

The planning of a park must surely be affected by other recreation facilities and other land uses in the vicinity. The proximity of Prince Albert National Park to Montreal Lake, Bittern Lake, Emma and Christopher Lakes, Nesslin Lake, etc., influences and will influence what pressures for use there are or will be. It is unfortunate that there does not seem to be any coordination of recreational land use in the boreal forest, involving the senior and provincial governments.

Concerning land use, the cutting of pulp on limits that surround the park on three sides may result in an influx of wild animals and humans, as preferred habitat for both deteriorates around lakes and streams. If, as seems likely, the park becomes an island in a logged-over sea, the pressures on it may suddenly and drastically increase in the next decade. The area and its facilities will probably prove to be too small.

More parks are needed to meet future recreational needs. The Prince Albert National Park should be supplemented by other National Parks northward on the Precambrian Shield where surface rocks, forests, lakes and streams provide a different boreal terrain, suited to canoe tripping and camping. The Churchill River should be considered, as well as the south shore of Lake Athabasca.

3.2 Zoning

The zoning system whereby 76% of the park is to be maintained as Wilderness, 16.7% as Natural Environment ("wilderness threshold") and 3.6% as Special Areas is satisfactory.

As mentioned earlier, the zoning itself might well be a feature accented in the park interpretation program. Here in microcosm is a plan for a region, with an urban center and an intensive-use zone surrounded by the fresh air, water and forests of a wilderness environment. A framework is established for overall management of the land, through harmonious integration of uses between the zones.

The banning of vehicles (boats, snowmobiles, etc.) from Class I and II land is strongly supported. "Power-intensive recreation" should be confined to other types of recreation areas.

Sandy Lake ought to be designated as entirely in Class III. It is not feasible to split a lake into two categories (III and IV) as shown on the map, unless there is some natural constriction as at the First Narrows. The proposed Class IV bay at the southwest corner of Sandy Lake will have the effect of converting it all to Class IV.

Special Areas (Class I) should always be buffered by Class II lands. There are several areas in the south and west of the park where this has not been done.

It is recommended that the boundaries of the park be extended to take in the potential Class I areas around Lavallee Lake and the southwest corner. Adequate area for buffer zones will be needed.

Trail 57 from the west boundary should be re-routed east of its junction with Moose Trail to avoid the wolf-denning area southwest of the First Narrows.

3.3 Resource Conservation

As stated in the plan, there is a need for greater understanding of the park ecosystem; the landforms, water bodies, plants and animals and their inter-relations.

Ecologists are agreed that there is a relationship between diversity of terrain and preservation of varied forms of life. In other words, a complex pattern of different vegetation types on a variety of landscapes (both land and water) will guarantee survival of many more forms of life than will a simple monoculture such as an extensive pine plantation or an agricultural crop. Furthermore, the encouragement of diversity is a means of hedging against an uncertain future whose catastrophes and needs are unknown. Finally, diversity is aesthetically pleasing, as is suggested by the meaning of its near antonym "monotony". Therefore the maintenance of landscape diversity should guide the balancing of the "evolutionary" and "era" conservation concepts (Master Plan, p. 16).

It follows that every area and zone needs a management plan, even if the plan is "no management". Where diversity in plant and animal communities is a goal, there may have to be manipulation that mimics natural catastrophes such as floods and the windthrow of trees. Prescribed burning to maintain grasslands will almost certainly be necessary.

3.4 Interpretation

The interpretation program is the most important function of National Parks. It should be organized at various levels, from the simplest for small children to the sophisticated for intelligent adults. In some National Parks — not, fortunately, Prince Albert — the current interpretation programs can only be described as bloody awful.

I believe it is a mistake to treat the parks only as museums. They *are* that, but they can be much more; viz. a means of introducing the public to the very fundamental environmental crises that face the world today, perhaps suggesting some solutions. The typical visitor has come from a city or town where the media have made him very aware of pollution, population problems, poor planning. What is the Park's meaning and importance to him? Is it only a relic of the past, offering a momentary escape from the real world, or does it present an ideal and viable alternative from which he can learn how better to shape an environment fit for living?

"To be effective, interpretation must be based on knowledge". There is a challenge here to get the kind of knowledge that will make the interpretation program creative in the widest sense. The National Film Board should be enlisted along with the necessary gifted people to produce professional audio-visual materials. Interpretive literature should be of higher quality. There should be more attention to methods of involving the visitors in activities that foster the learning process.

In the booklet "National Parks Policy" it is stated (page 10) that organized group camping is acceptable if it is oriented to the benefit, education and enjoyment of natural surroundings. The Parks should consider a program of education for public school children on a year-round basis, developing and maintaining facilities and providing leadership for students, say in Grade VIII, from throughout the province. This sort of facility is lacking in Saskatchewan though it has been provided by some large school districts in Ontario for many years.

Sask. Govt. Photo

Discovering nature

3.5 Development

Roads should not invade Class I and Class II areas but, on the other hand, they should be built peripherally so that visitors can at least see some of "their wilderness". As suggested in the plan, there should be much more attention to road location, design and construction so that contact with the park landscape is emphasized. Some points of detail follow:

A vehicle ferry at the First Narrows will cause traffic pile up at that point; then a bridge will be demanded and the Narrows will lose its charm. It would be better to leave the roads unconnected across the Narrows as they are now.

The proposed loop drive west from Sandy Lake should be shortened, to run south from Hunters Lake, thus keeping it farther from and protecting the Potential Class I area in the southwest corner.

Hiking and bicycle trails should be established or extended as outlined on page 20. All trails and canoe routes need clear posting.

It is difficult to see the logic of encouraging horseback riding in the

Saskatchewan Government Photo

Natural landscape experience

parks. Horses are destructive of natural vegetation and their manure along trails spoils the park atmosphere. Horseback riding is an activity that might well be relegated to the park boundaries and beyond. Bicycling is the logical alternative.

The horsepower of boats should be limited on all parks waters. A limit of 15 horsepower would keep the noise level down while also limiting the size, speed and wash of boats. Fast power boats should be banned from all lakes.

The parks policy is illogical as regards fishing. Hunting is not permitted but the killing of fish is. The argument is that fishing leaves the environment unimpaired, but this is an argument based on ignorance. It simply is not known to what extent other forms of life, for example predators such as mink and otter, are harmed by man's competition with them for fish in streams and lakes. If the area is to be a wilderness, then fishing should be banned. As a minimum, the daily allowable catch should be severely restricted. The catching of fish in quantity to be taken out of the park for consumption elsewhere is reprehensible; it is a form of commercial fishing and is comparable to taking home firewood or Christmas trees from a National Park.

3.6 **Conclusion**

The plan for Prince Albert National Park is on the right track in its concern for preservation and for educating people in the "natural landscape experience". Attempts to make the Park serve the purposes of forms of recreation not consistent with the preservation-of-nature idea should be vigorously resisted, especially those forms involving commercial enterprises, power machinery and intensive activities drawing participants into crowds. The Park planners should be more daring and imaginative in developing a zoning system, land uses within zones and, in particular, the interpretive - educational aspects of Park programs. The National Parks have the opportunity to play an important role in developing an awareness of environment, and of the man-land relationship, for the benefit of the Canadian people. This goal should be primary in the Prince Albert National Park.

HEARINGS ON PRINCE ALBERT NATIONAL PARK

I. THE HEARING IN PRINCE ALBERT

What is your opinion on the provisional master plan for Prince Albert National Park, excluding the townsite of Waskesiu? That was the subject of a hearing held in Prince Albert last June. The National and Historic Parks Branch of the Department of Indian Affairs and Northern Development created the plan. Then it conducted the hearings "to inform the public about the provisional master plan for the park, to receive written and oral comments on the proposals, and to hear recommendations for other approaches." These it got.

Copies of the plan are available from the National and Historic Parks Branch, Customs Building, Calgary, for $1.00 — money order or cheque payable to the usual personage, Receiver General of Canada. The plan consists of two booklets and maps. Much interesting background is given about the Park, its geology, vegetation, mammal and bird forms, and its history. An insight is provided into current thinking about parks, their preservation, use and management. The booklet describes what the plan is all about, with reasons for the various steps that would be taken.

Basically the proposal consists of only three things, a zoning scheme, some boundary adjustments, and modifications in certain facilities and programs. The objective is twofold: to provide through park management for the protection and preservation of key, representative and characteristic features for future generations; and to provide facilities and programs for "enjoyment of the attractiveness of the park" (as distinct from things not related to wilderness recreation). To a degree these two objectives conflict. The best any master plan can do is set the stage for a reasonable balance. To aim to cater fully to all human desires would eventually result in substantial modification and destruction of the natural scene — no park; to pitch for complete exclusion of people, the ultimate in preservation, would also result in no park — because it would be politically (people) unacceptable. The conscientious intent to provide for balance was a point missed by many speakers at the hearing in Prince Albert. Another balance inherent in the scheme also was not appreciated by some commentators. This is with respect to time — the offset of the desires of the users of today against consideration for the users of tomorrow. One might not agree with the Parks Branch in its selection of the balances, and several people took strong exception to the second—wanting the plan cast more in favour of present users than future ones. But not to recognize the need for balancing was to miss the whole thrust of the plan.

Nowhere could I find reference to a legal requirement to have public hearings on the proposals. That they were held, even though in response to the mood of the times, was a forward step. Those individuals and groups who would not otherwise have spoken out have now done so. Likely there will be the usual behind-the-scenes activities leading to the eventual political decision. But as a result of the hearings this will be influenced by a broadened spectrum of views and the many constructive suggestions.

The Zoning Scheme

The plan calls for the zoning of all land and water areas in all national parks into five areas on a descending scale of restrictions on human activity to be permitted. The foundation theme is that the wilderness is the prime consideration. Class I, special areas, would receive the highest order of protection. These would take up 3.6 percent of the Park area and would be the Lavallée Lake district containing a pelican breeding site, historic Grey

Owl's cabin, a wolf denning area and the grasslands area in the southwest corner. Access to these would be controlled. Passage through them would be by hiking or canoe, and vehicles would not be permitted.

In my opinion, those who referred to this part of the plan—and very few mentioned Zone I — supported it. Three speakers firmly endorsed the concept for the special areas. One of them was the daughter of Grey Owl. Another, while agreeing with the idea of special status for Lavallée Lake, the wolf denning area and the small pocket of prairie, voiced a qualification about the last one. Specifically that this vestige of parklands prairie should not be a substitute for a grasslands national park in the south of the Province.

Class II or wilderness recreation areas would be the largest category, 76 percent of the Park. Preservation of a wilderness recreation environment would be the objective for them. Facilities would be restricted to hiking trails, canoe routes and primitive campgrounds. There would be no improved roads and power boats would be prohibited. Kingsmere Lake would be included in this area.

A number of people questioned the selection of Kingsmere for a ban on motorboats. In fact, aside from matters relating to Waskesiu townsite, this aspect drew more attention than any other point in the plan. Most speakers were against the proposal. They either believed priority belonged to the fisherman, that the numbers of canoeists would not warrant excluding powerboats, that other waters in the Park or north of it offered better or safer canoeing, that powerboats and canoes were compatible uses, or that one cannot turn back the clock. Two briefs, while containing negative opinions on the proposal, gave constructive alternatives which in the opinion of the authors made better sense for both groups of users. The six briefs that expressed or implied support did so either as a result of the author's previous experience canoeing on Kingsmere, or on grounds that true wilderness recreation required the absence of motorboats—or simply that there must be places where one could get away from the noise and other disadvantages of powerboats. The Parks Branch has a difficult problem. Its task of protecting the special area containing Grey Owl's cabin, which area abuts Kingsmere, would no doubt be easier without powerboats on these waters. It wishes to encourage canoeing as a recognized form of wilderness recreation and it wants land areas and contiguous water bodies to be inseparable entities. On the other hand some of the arguments against the proposed ban are cogent.

About 16.7 percent of the Park would be Class III, natural environment areas. These would encompass water as well as land. Crean, Namekus and Sandy would be among the lakes so designated. Strips of land along the south boundary, part way up the east side of the Park and a portion of the foreshore of Upper Waskesiu Lake would be the land areas. "The concept of a wilderness threshold best describes these areas. They serve as buffers between wild areas and more developed areas . . . " That is, they would occur between Class I and II areas on one hand and Class IV and V on the other. Driving and motorboating would be acceptable forms of recreation.

Except for the matter of roads there was little comment about this zone. No definite views on the extent, location or compatible uses were offered, other than those of the Canadian Society of Wildlife and Fisheries Biologists. About roads, which would become scenic drives, raceways or means of access depending on who one listened to, divergent opinion was expressed. Differences focussed on the extent of penetration.

General outdoor recreation areas, Class IV, would be 3.4 percent of the Park. In them would be an increased variety and intensity of uses. These would be in four places, the major one completely surrounding Lower Waskesiu Lake. Essentially this now exists. The principal campgrounds and activity centres would be in this zone. Little was said on this zoning proposal other than about the premise for the addition of the three smaller parcels. Since the Parks Branch visualizes considerable development for this Class and contemplates increasing the number of parcels accordingly, it obviously is predicting an increase in the number of users. During the hearing officials confirmed that five to six percent annual growth in numbers is being assumed. Some speakers believed the estimate was high and that local people would continue to be the vast majority. Minority opinion agreed with the projection and further averred that local use as a result would be proportionately less in the future—it was a day of disagreement.

Class V intensive-use area, would be 5.2 square miles in extent, or only 0.3 percent of the Park — specifically the townsite of Waskesiu. The plan noted that consideration of this zone was the subject of a separate study. In the preamble it was stated that another hearing would be held about the townsite, and that briefs on it were really not being sought now. But the townsite was what motivated most of the speakers, a few, unfortunately, with considerable heat and some rudeness. The plan, management, policies, personnel, public relations, and the government bureaucracy all came in for criticism, warranted and otherwise. Those so speaking appeared to have personal interests at stake, either as owners of cottages and shack tents or as concession operators and trade associations. The strong feelings had their roots in the Department's move to emphasize wilderness recreation and phase out non-compatible uses. Previously when a scheme for the removal of cottages and shack tents from all parks was announced, a storm of protest resulted and the Department had to modify its position. The altered policy is given in the provisional master plan.

The attitude of those who would be or thought they would be disadvantaged was for maintenance of the status quo. No change. It is our park —leave it alone. Unfortunately personal concerns tended to cloud other issues.

Boundary Alterations

The second feature of the plan is adjustment of the boundaries to totally include or exclude some things that are currently half in and half out of the Park. These have to do with habitat preservation (pelicans, grassland), or with park management (some lakes and a road) or with recreation (canoeing rivers, campgrounds). In sum, as the areas involved are small, the boundary adjustments would be minor. However some of them have much functional significance.

There is no reference in the material to any studies having been made of the Park in a regional context. The Saskatoon Natural History Society stressed the need for inter-governmental consideration of the nearby Churchill River areas in terms of preservation and wilderness recreation, and that these should not be ignored in an assessment of the future of Prince Albert National Park.

With two execeptions, the few speakers who referred to the proposed boundary alterations spoke in favor of them.

Facilities and Program

The proposals for facilities and program are in line with principles already mentioned: primary consideration for preservation and for the encouragement of wilderness recreation. According to the plan there would be expansion of nature interpretive programs, more activity centres and primitive camping areas, an expanded system of canoe, hiking and riding routes, and a greater amount of research and study of resources for management purposes. The development of non-compatible uses would be encouraged outside of the Park rather than in it. These would be such things as accommodation, services and non-wilderness recreation facilities.

This feature received considerable criticism. However, it seemed to be largely linked with the comment regarding the townsite. Again a commonly expressed feeling was in favour

Saskatchewan Government Photo

Wilderness recreation

of leaving things as they are—with some saying that the contemplated investment in facilities and program would be a waste of money. Apparently this view was in part the result of objections to the phasing out of non-compatible programs that has already occurred.

A position favoring the proposal was taken by a few speakers, but in so doing they raised questions on aspects not mentioned in the plan. Was sufficient consideration given to the elderly and to the economically disadvantaged? Would the Parks Branch have sufficient, properly-trained help to man the nature programs? Was the programming to include education of the public-at-large on the place of parks? Would the Branch see to an improvement in its public relations? Did the entire plan have sufficient regard for the ecosystem?

Conclusions

One must be wary in drawing conclusions about the hearing in Prince Albert. In the first place briefs could be written or oral. If written the sponsor could speak to it or not as he or they wished, and if he so elected he did not necessarily dwell on the same subjects on which he wrote. That is, without the written statements one does not have all the views or an accurate picture on the direction they point. By sitting in on the hearing one perceived only part of the picture. My opinions are to be taken in this context.

The Parks Branch has a thorny problem. The private cottages and shack tents are there in fact. Inescapable is the resultant: the owners have a right something analogous to a squatter's right, even though they have term leases. On the other hand there are two views, that a national park is not the place for these things, and that the taxpayers-at-large should not have to subsidize them. The same points apply in general with respect to services and non-wilderness recreational facilities and programs most of which were, are or would be in the townsite.

Further, the Department was found wanting in the manner in which it implemented its housing policy. Its public relations and procedures on some of the changes made in services do not appear to have been the best. This then was the background for the hearing in Prince Albert. One could feel an undercurrent against the plan, against the Parks Branch, against change.

This was unfortunate because most of the reaction was about the townsite and what happens in it. But the townsite takes up only 0.3 percent of the area, and itself was not supposed to be a subject for the hearing. As for all the rest of the plan and all the rest of the Park, with the single major exception of the proposal about Kingsmere Lake, the reactions I sensed either non-existent, neutral, conditionally favourable or outright endorsations.

The lessons to be had from the hearing in Prince Albert are two. One, the explaining of and the manner of implementing a scheme are at least as important as the plan itself, especially for parks. Two, the users of plans, and the makers of plans for parks still have much to learn, not only about the natural scene but also about each other—and it is getting late.—*J. A. Wedgwood*, Saskatoon.

2. THE HEARING IN REGINA

Immediately preceding the hearing in Prince Albert, the Parks Branch held a public hearing in Regina where an equally encouraging number and variety were presented. Regina is farther removed geographically and psychologically from the problems of the park, and there were naturally fewer users among those who spoke at the hearing. Perhaps for this reason, the Regina hearing was characterized by a high percentage of presentations reflecting general support for the protection of the natural quality of the area and an increased use of the park for canoeing, hiking, etc.

Various organizations supported this view — the Federation of Ontario Naturalists, the Saskatchewan Natural History Society (seconded by the local Moose Jaw and Regina natural history societies), the National and Provincial Parks Association, and the Saskatchewan Camping Association. But there were also many briefs presented by individual citizens who favoured development consistent with the natural environment, and it was significant that these individuals did not come from any one interest group, but represented a broad range of people — canoers, natural history society members, university biologists, collegiate students with a conscious concern for the environment, housewives and family holidayers. Opposed to the new plan were certain park users and cottage owners who would prefer to have the *status quo* maintained, as well as the spokesman for the Saskatchewan Tourist Association.

It was of special interest that the Federation of Ontario Naturalists should appear in Saskatchewan to speak on the provisional plan for Prince Albert National Park. The Federation has appeared at each of the park hearings held by the Parks Branch and, by doing so, hopes to emphasize the *national* character of these parks. Gerald McKeating, who spoke for the Federation, made it clear that he spoke as a Canadian citizen, and that everyone participating in the discussions in Saskatchewan should also try to see the implications for a national parks policy of actions taken in Saskatchewan. It was in this broad context that McKeating placed the need for the preservation of native grassland areas which are at present not represented in the national parks system, and he urged that the protection of a small grassland area in Prince Albert Park not be a substitute for the establishment of a prairie park.

THE CRAZY FLIGHT PHENOMENON OF THE RUFFED GROUSE

by **Victor C. Friesen,** Rosthern, Saskatchewan

On our farm, three miles east of Rosthern, Saskatchewan, I have had numerous opportunities to observe Ruffed Grouse (*Bonasa umbellus*). Immediately east of the farmyard are two mature aspen poplar bluffs, each of approximately two acres in extent. These bluffs have an undergrowth which consists chiefly of red osier dogwood with some prickly rose, northern gooseberry, and choke-cherry — altogether an ideal habitat for Ruffed Grouse. A row of pruned Manitoba maples leads from the bluffs across the yard to a wooded pasture on the other side. The grouse frequently walk along the tree-row when seeking a different covert.

Every year from my boyhood days in the 1930's to the present time, I have heard cock grouse drumming in one of the bluffs, and I have often seen a hen with her covey of chicks. However, it is only during the past decade that I have observed the Ruffed Grouse's "crazy flight", the phenomenon which I wish to consider here at length. The "crazy flight" refers to this bird's propensity for flying wildly into strange territory at certain times of the year, particularly autumn, and/or flying against objects such as trees and buildings, thereby often seriously injuring, if not killing, itself. Reports have been made of this grouse hurtling against automobiles and through plate glass windows, and in one instance of its being impaled on a dry branch. The bird's reckless flight has been noted by many observers, and several explanations of it have been offered.

Audubon (1838) in October, 1820, observed the grouse's "partial sorties" (1967:73) with the approach of autumn, most noticeable where the birds cross rivers. He suggested that an abundance of food was a cause of these flights. He also noted that the male grouse was readily "inflamed with jealousy" (1967:77) when a sound was produced in imitation of the grouse's drumming, causing the bird to fly directly at the imitator.

Later observers seem to have taken up suggestions from Audubon's report to explain the crazy flight phenomenon. There is, for example, an old hunter's notion analogous to the "psychological" motive seen by Audubon in the jealous grouse. This notion is that Ruffed Grouse are frightened by the falling of leaves in autumn, their habitat being now more exposed, and that the birds become so nervous and distracted that they embark on their crazy flights.

Allen (1928) indicated that fright (although not from falling leaves) accounted for the unusual flights of Ruffed Grouse. Some birds had apparently been pursued by owls or hawks; others had apparently been frightened by wind storms; in some cases the cause of fright was "indeterminable" (1928:85). The author also pointed to a parasitic stomach worm as a possible irritant which could prompt wild flights, since a considerable percentage of the birds were thus infected. Gross (1925) stated that seven of 10 birds found dead contained nematode stomach worms *(Dispharynx).* And a blood-sucking fly has been cited elsewhere (Hall, 1946) as a possible irritant initiating crazy flight.

Bump and his associates (1947) noted that a Ruffed Grouse marked by attaching a bell to its wing was found later with a broken neck, having flown against a tree. The suggestion was that the bird, irritated by the bell, responded similarly to a bird irritated by a parasite. Bump and associates believed that the crazy flight phenomenon, however, was largely the result of young birds seeking territories each fall. This notion is a refinement of what Audubon had earlier called "partial sorties." Of 15 casualties examined by the Conservation Department's field crews, all were first-year birds. Such a movement helps disperse young birds and the dispersal is generally effective, according to this study, since the chance of many birds flying into obstructions seems "quite remote." Of more than 50,000 grouse flushes witnessed by the field crews, less than half a dozen resulted in accidental deaths. The crews also reported grouse deaths by collision in spring, but these were thought to be merely accidental and not due to a crazy flight impulse.

Schorger (*in* Grange, 1948) believes that in Wisconsin spring crazy flights, although comparatively rare, do occur. He would agree with the New York State study that population pressure appears to be the cause of the flights—spring or fall. A peak occurs in fall, he believes, because of the greater activity of the grouse then. He also records two peaks during a single day ——in the morning and in the evening. Of the casualties which Grange (1948) examined, all had been normal, healthy birds, thus discounting the parasite theory.

Forbush (1927), cites Seton, who claimed that the crazy flight was a characteristic of young birds in their first season and sometimes in the second. Forbush himself, however, suggested that the flight might be caused by an "inherited instict of migration." Bent (1932) repeats this notion.

Hall (1946) says that if Ruffed Grouse are following an old migratory instinct, then there should be a southward drift of the birds, which is apparently not the case. Hall suggests —and this harks back again to another of Audubon's conclusions — that the grouse may be prompted into crazy flights by an unconscious urge to change diet.

Another interesting theory is that grouse engage in wild flying because they have eaten mouldy or fermented rose hips. It is claimed that such birds are inebriated and cannot see what they fly into. Attractive as this theory may sound, it does not appear to be substantiated by much evidence. Both the New York and the Wisconsin studies show that rose hips are not a principal food item of grouse. Indeed, of 1093 grouse examined in New York in all seasons from 1931 to 1941, rose hips were not among the top 25 plant foods.

Edminster (1947) provides us with one of the most detailed explanations of the crazy flight phenomenon. Young Ruffed Grouse become quarrelsome as they attain sexual maturity in fall. A bird may be driven away by a member of its own brood, and its flight may be reckless as it seeks to flee its tormentor. This bird must find a territory elsewhere, but it may encounter further hostility from other grouse already established there. With continued harassment, the grouse will become "more nervous" and "more desperate" because of its "growing inferiority complex." It will thus fly out of its normal habitat, and on occasions, fly against objects in those unfamiliar surroundings.

My observations at our farm during the 1960's of six incidents involving Ruffed Grouse crazy flights tend not to point to any clear-cut reason for the accidents. More occurred in spring—rather than in fall as one might expect —and one occurred in summer. Most occurred in the waning light of early evening when grouse commonly seek their nightime covert; one occurred on a sunny midmorning; another occurred in the afternoon. All collisions were against the house rather than against one of the other buildings. (I would, of course, be more aware of collisions with the house.) Where the point of impact could be determined (in three cases), it was found to be only one to two feet above the ground.

The six incidents may not form a representative sample of the crazy flight phenomenon, but my opportunity to make this number of observations in as many years is noteworthy. An experienced Saskatchewan birder with whom I consulted was not familiar with the phenomenon, and Grange (1948) mentions that in 25 years' experience with grouse in Wisconsin he examined only about half a dozen crazy grouse.

My first observation took place towards the end of April, 1963 when I found a dead Ruffed Grouse beside the house. It had a broken neck, and I assumed that it had flown against the wall. A few days later, in the evening, I heard a loud thump against the house's outer wall. On going outside, I discovered beside the house a freshly killed grouse with a broken neck. A few feathers still sticking to the wall showed where the bird had met its death. Both incidents were witnessed by another member of the family.

The next year, 1964, two more grouse struck the house. The first of these casualties was similar in nature to the last one described, except that the time of year was early May and the time of day was midmorning. Again, a thump was heard on an outer wall, and the dead bird was found nearby. On the wall where the thump originated could be seen a mark as though a dusty mop had been beaten there.

The second incident that year occurred on an afternoon in August. It is the only incident in which I could observe the complete flight of the bird. I was standing outside near the doorway talking to two guests, when I noticed a Ruffed Grouse 35 yards away, walking towards us beneath the row of Manitoba maples which skirt one side of the yard. I had barely pointed out the grouse's presence to my companions before the bird rocketed into flight almost directly at us. Immediately I flailed my arms to attract the bird's attention. It veered at the last moment so that it struck the house only a glancing blow. It plumped into the grass beside us, looked at us for an instant, then exploded into the air once more, this time in a more sensible direction. The bird apparently was unhurt. The New York State study reports that alarmed Ruffed Grouse have been timed at speeds up to 47.2 miles per hour. So far as I know, there was nothing to alarm the grouse that the three of us saw, and its speed was much slower. However, had it hit the wall straight on, it most likely would have been another fatality.

In the next incident in early May of 1966 the grouse survived at least the initial impact. Again the time was early evening, and again a loud "thump" took me outside. There stood a Ruffed Grouse, bill agape, unsteadily watching me. It made no effort to fly away and it did not even attempt to walk off. I did not approach closer, for I feared that the bird had suffered internal injuries and I did not want to disturb it. After 10 minutes it walked into one of the aspen bluffs. It is probable, however, in view of the findings of Bump and his associates, that the bird failed to survive. They discovered, at least among captive birds, that even minor injuries may cause death from malnutrition because of a disinclination to eat.

The last of the six incidents is the only one occurring in fall (September, 1968) and the validity of the observation is to be questioned. At dusk I again heard the familiar thump. On going outside, however, I found neither bird nor feathers which could aid in identifying the source of the noise. but I believed it to have been a grouse.

In the past three years I have not noted any flights against our house. Why the cessation of this phenomenon now, and why its sudden onset in 1963, when throughout the years Ruffed Grouse have been relatively numerous in this local area? Knight (1947), although he agrees with Edminster's conclusions, may throw some additional light on my observations. He records that the owner of a new house on the edge of a wood had painted it white, with the result that many Ruffed Grouse killed themselves by flying against its walls. The birds, Knight suggests, probably thought that clear sky was ahead of them. The owner then painted his house a dark color, and the accidental deaths stopped. Now, I did paint our house white the summer before the casualties started. The gleaming white boards might have appeared as sky. However, most of the casualties occurred in times of waning light. Furthermore, the house has always been painted white, and no collisions occurred when the house was freshly painted twice in the 1940's.

In the late 1930's my older brother observed a Sharp-tailed Grouse *(Pedioecetes phasianellus)* fly headfirst against an oat-bundle stack in midwinter (with no obvious injury to itself). The bundles were snow-free so that the stack made a sharp contrast with its lighter surroundings. This bird had flown as any grouse typically flies—in a straight line once it had taken off. A grouse may veer in its course, but its stiff-winged flight allows for little manoeuvrability. Witness the clicking sounds made by a Ruffed Grouse's wings as they hit against twigs or small branches in the bird's flight through woods. Since the Ruffed Grouse tends to fly close to the ground in its natural treed habitat, it is more likely than other grouse to meet obstacles in its path.

Through the years naturalists and woodsmen have added to our understanding of the Ruffed Grouse's crazy flight but more details of the circumstances surrounding this curious phenomenon need to be recorded in the future.

LITERATURE CITED

Allen, A. A. 1928. The Ruffed Grouse investigation: progress report for 1928. Trans. 15th Natl. Game Conf. (Washington, D.C.), 83-88.

Audubon, J. J. 1838. (Dover ed., 1967). The birds of America, Vol. 5. New York.

Bent, A. C. 1932. Life histories of North American gallinaceous birds. U.S. Natl. Mus. Bull. 162, Washington, D.C.

Bump, G., R. W. Darrow, F. C. Edminster, and W. F. Crissey. 1947. The Ruffed Grouse: life history, propagation, management. New York State Cons. Dept., Albany.

Edminster, F. C. 1947. The Ruffed Grouse, its life story, ecology and management. Macmillan, New York.

Forbush, E. H. 1927. Birds of Massachusetts and other New England states, Vol. 2. Berwick and Smith, Norwood, Mass.

Grange, W. B. 1948. Wisconsin grouse problems. Wisconsin Cons. Dept., Madison.

Gross, A. A. 1925. Diseases of the Ruffed Grouse. Science, 62:55-57.

Hall, H. M. 1946. The Ruffed Grouse. Oxford Univ. Press, New York.

Knight, J. A. 1947. Ruffed Grouse. Alfred A. Knopf, New York.

ANNUAL MAY-DAY BIRD COUNTS, 1971

Reports of the May-Day counts will appear in future in the Society's *Newsletter*, following a decision taken at a meeting of the Board of Directors earlier this year. However, since the counts have appeared regularly in the *Blue Jay* for a number of years, summaries of the 1971 reports submitted by Saskatoon and Regina are presented in this issue. Interested readers are referred to the full accounts which will appear in *Newsletter* No. 28, Summer 1971.

Annual May-Day Bird Count, Saskatoon, May 14, 1971

Fifty-nine observers in 11 groups drove 1,243 miles and walked another 30 this year to uncover 37,012+ birds of 137 species. The species total (far below last year's record 162) is impressive when weather conditions and the scarcity of migrant flycatchers, thrushes, vireos, warblers and sparrows are taken into account. Another factor was that this year's count was 8 days earlier than in 1970. The day was cool with brisk NW winds which made it difficult to hear bird calls after 7 a.m.

The April-May migration this year was one of the most erratic in memory. The first migrants arrived earlier than usual. About 10 days prior to the count, migratory movements virtually ceased. Not until May 17 did a fair number of flycatchers, thrushes, vireos and warblers begin to pass through the region.

Records of interest include the huge flocks of Lapland Longspurs, the more than 19,465 individuals representing over half of the total birds counted. The 68 Snow Geese at Brightwater Reservoir were the first recorded since May-day counts began in 1957. All of the hawks seem to have maintained their numbers during the past four years. Short-eared and Long-eared Owls remain scarce after the peak numbers of 1969. Sharp increases in two shorebirds were recorded (1970 figures given in brackets): Golden Plover 467 (18) and Dowitcher 337 (40). The following species were down in numbers: Upland Plover 3 (161), Northern Phalarope 133 (3,978+). The 5 Bonaparte's Gulls were the first recorded on a count since 1963, as was the single Mockingbird.

Birds normally expected in mid-May and not recorded at all include the Eastern Phoebe, Cliff Swallow, Purple Martin, Long-billed Marsh Wren, Hermit Thrush, Veery, Tennessee Warbler, Ovenbird, Northern Waterthrush, Redstart, Bobolink, Baltimore Oriole, Rose-breasted Grosbeak and White-crowned Sparrow.—Compiled and summarized by *Stan Shadick* and *J. F. Roy.*

Annual May-Day Bird Count, Regina, May 15, 1971

On May 15, 1971, 125 species of birds were recorded in the 700-square mile Regina area which falls within a circle 30 miles in diameter with the Legislative Buildings as its centre. Comparatively speaking, the species total for 1971 is low, probably owing to poor weather conditions slowing down the normal migration. It was particularly noticeable that there were few species of warblers (seven species only) and very small numbers of both Swainson's and Gray-cheeked Thrushes, with neither the Hermit nor the Veery being reported. On the other hand Cedar Waxwings were present (11 recorded) at an unusually early date, these being accounted for possibly by the fact that some Cedar Waxwings appeared to have wintered in the area. Most of the waders expected in mid-May were present, with a record of seven Knots being of special interest for the area.

One of the serious difficulties faced by the Regina count in recent years is the scarcity of experienced observers. This factor and the fact that migrant birds are moving through the area at that time, make it impossible to obtain a complete and accurate spring count, and it must be accepted that we are dealing with approximate rather than definite numbers. Nevertheless, a general picture of the spring bird life of the area in any given season, particularly in comparison with other areas and other seasons, is possible.—Compiled by *Evelyn Weisbrot* and *Joyce Deutscher*, and summarized by *Margaret Belcher.*

Photo by R. A. Mitchell, The Pas

Gray Jay

MALE EASTERN BLUEBIRD ASSISTS FEMALE MOUNTAIN BLUEBIRD IN RAISING YOUNG

by **Lorne Scott**, Indian Head

The Eastern Bluebird *(Siala sialis)* is now considered by many people to be fairly rare in Saskatchewan. Even more uncommon than records of the bird itself are nesting records of the species in Saskatchewan.

A recent review of breeding records of the Eastern Bluebirds in Saskatchewan by Margaret Belcher (1966) seems to establish that the occurrence of this species in the province has been erratic, rather than following any definite pattern of increase or decrease, or of extension of range. Miss Belcher's review of the status of the Eastern Bluebird in Saskatchewan was prompted by the first nesting of the species in Regina in 50 years, and in the same year, 1966, three other nestings in the province were reported to the *Blue Jay*. One of these was at Okla, 40 miles northwest of Yorkton, in a nest box set out by David Ashdown (1966); the other two pairs were nesting one mile apart in nest boxes set out by myself south of Indian Head, and each of these pairs raised four young (Scott, 1966).

I know of no other reports of Eastern Bluebirds nesting in Saskatchewan until 1969. In that year, Arthur Neuls of Grenfell had a pair raise five young in one of his bird houses, where Fred Lahrman and I had the opportunity to observe them. I also had two pairs of Eastern Bluebirds occupy my houses in 1969. The first nest was discovered at Lemberg, but unfortunately vandals destroyed their nest and young and the adults were not seen in the area again. The second nest was located south of Indian Head, and this pair raised four young.

Now, in 1971, Dr. John Lane of Brandon reports his first record of an Eastern Bluebird nesting in Saskatchewan in the bluebird nest line that he has established, this nest being located two miles west of Whitewood on the CNR. One should comment in this connection that Dr. Lane's extensive line of bird houses and our continuation of this nest line have undoubtedly increased the contacts between the two species of bluebirds.

On June 30 of this year (1971) I stopped at a bird house (#866 of my nest line) about one mile north of Lipton. There had been six Mountain Bluebird eggs in the house on June 8, and I knew that if all went well the young would be ready to band. Two eggs had not hatched, but I proceeded to band the four young which I found in the nest. As I did so, I saw the female Mountain Bluebird and later heard an unusual call from the second adult bird which was flying above me. I was surprised to note that the second one was a male Eastern Bluebird. It defended the nest aggressively, swooping within a couple of feet of my head several times. The female Mountain Bluebird was wary and kept out of sight most of the time while I was at the nest. The young birds in the nest were about 13 days old and well-feathered, and their plumage appeared

Photo by Gary Seib

Female Mountain Bluebird

to be that of normal Mountain Bluebirds.

I waited in the truck for 20 minutes in the hope that the adult birds would enter the nest box and that I could catch and band them. Although the female Mountain Bluebird did not come to the house while I was waiting, the male Eastern Bluebird entered the house and fed the young birds once, but he moved too quickly for me to catch him.

I returned to the bluebird house at midnight with Gary Seib to set up a blind for photography, and we caught the female Mountain Bluebird in the nest and banded her. This gave us the opportunity to examine her plumage carefully, and we found it to be the typical plumage of the Mountain Bluebird.

The following day Gary Seib spent six hours in the blind and photographed the birds. He observed that the male Eastern Bluebird defended the territory from Goldfinches and Tree Swallows. The male also brought food to the young about twice as often as the female.

On May 18 this nest box had contained five bluebird eggs, assumed to be those of the Mountain Bluebird since a female of this species was present. On June 8, I noted that a second nest had been built on top of the first nest and clutch of eggs. The second nest contained six eggs. This time a male Mountain Bluebird was observed at the nest as well as the female. In my experience with bluebirds, the finding of a second or even a third Mountain Bluebird nest built over the first nest and eggs is not uncommon. I believe that this happens when one or both of the adults have lost their lives or are forced to abandon the nest owing to some unusual circumstance. Then the remaining adult or another pair builds a new nest on top of the first nest.

In this case it would appear that the female Mountain Bluebird lost her mate after she had begun nesting and that the male Eastern Bluebird arrived in the area without a mate. The female Mountain and the male Eastern Bluebird accepted each other and the male Eastern Bluebird assisted in raising the four young.

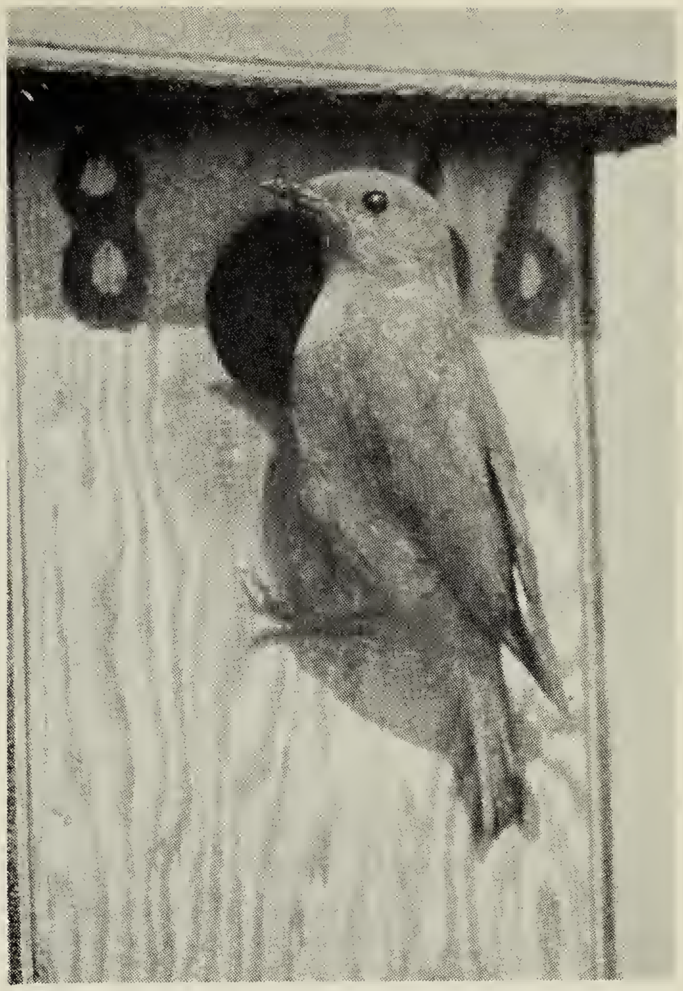

Photo by Gary Seib

Male Eastern Bluebird

When Gary Seib checked the nest again on July 10, the young had left the nest and no bluebirds were seen in the immediate area.

Dr. John Lane (1968, 1969) has given an interesting account of a hybrid Eastern Mountain Bluebird male mating with a female Mountain Bluebird and hatching young successfully, but evidently the association between the Eastern male and the Mountain female in the present case occurred after eggs were laid.

LITERATURE CITED

Ashdown, D. 1966. Eastern Bluebirds. Blue Jay, 24:187.

Belcher, M. 1966. After 50 years, the Eastern Bluebird nests again at Regina. Blue Jay, 24:187-189.

Lane, J. 1968. A hybrid Eastern Bluebird X Mountain Bluebird. Auk, 85:684.

Lane, J. 1969. Hybridism in the Eastern and Mountain Bluebirds. Blue Jay, 27:18-21.

Scott, L. 1966. Eastern Bluebirds nesting at Indian Head. Blue Jay, 24:186-187.

HARLEQUIN DUCK AT REGINA

by **Frank H. Brazier,** 2657 Cameron Street, Regina

"The British Columbia observation helped me in identifying the birds in this instance, but I wish, on aesthetic grounds, that these birds had still been in possession of their spectacular breeding plumage!" With these words Dan Brunton, of Ottawa, concluded his comprehensive account of "The Harlequin Duck in Saskatchewan" (Brunton, 1968), referring to his discovery of three drakes on Regina's Wascana Lake, September 6, 1968. Had Dan Brunton been with us on June 5, 1971, he would have had his wish.

The afternoon of Saturday, June 5, was dull, with a heavy overcast. After we had concluded the day's shopping at about 4:15 p.m. near the southern end of Regina's Albert Street, my wife Margie and I decided to take a short run into the country. Two miles south of the No. 1 and No. 6 Highway traffic interchange we turned east for no particular reason, admired the 60-odd Canvasback drakes loafing on the flooded field at Cinema-6, and then went on.

"Let's see if we can pick up some McCown's Longspurs," I suggested, for on occasion it has been our pleasure to show this little fringillid to eastern and southern visitors who need it for their "life lists". Two miles from Highway 6 we turned south. About one-half mile further we reached a shallow depression, water-filled, which contained some emergent growth. Going by, I noticed a resting bird very low in the water near the weeds in the centre of the pond, a round-backed creature with a white blob at the front of the head, and white in the plumage. "Probably a coot," I remarked as I brought the car to a stop and peered at it with my 10x50s. At that time the bird was resting with its bill buried in the breast feathers (a fact I did not determine until later) so all I could see was what I thought was a large white bill, a white head-patch and two white stripes across the forepart of a body which, in the poor light, seemed to be uniformly gray.

"What is it?" asked Margie.

"I don't know, but if that's a coot it's the dangdest coot I ever saw! Where's the book?" Since the book was sitting uselessly on the piano stool at home, I turned the car around and headed there. "I've never seen that bird before," I acknowledged. "I'll see if Elmer's home, get a book and return." The puddle was six miles from my door so I was back about 5.00, when the light conditions were even poorer. Elmer Fox had not been at home, but no sooner had I stopped to again examine the duck, (which had obligingly moved a little closer) when Elmer and his son Douglas drove up. They had seen my car while cruising the area.

This time the bird was floating with head up. The duck bill could be clearly seen as could the curved white face patch, the two white headpatches and the white stripes and chestnut sides. This curious marking makes the drake Harlequin Duck *(Histrionicus histrionicus)* about the most bizarrely patterned duck there is. Later, I returned with George Ledingham to view the distinguished visitor, and he readily confirmed the identification made by Elmer Fox and myself.

Striking as is the Harlequin's appearance in the spring, he could hardly have chosen a more contrasting stage to show himself to us. (His name is derived from the Latin, *histrio* — a stage-player, having reference to his spectacular dress.) The pond was very shallow, a few inches deep at the most, certainly an extraordinary situation for a bird which, as F. H. Kortright says in *The ducks, geese and swans of North America* (1962): " . . . is found . . . frequenting the rocky shores and revelling in the rough, tempestuous waters and the tumult of breakers on the exposed surf-washed

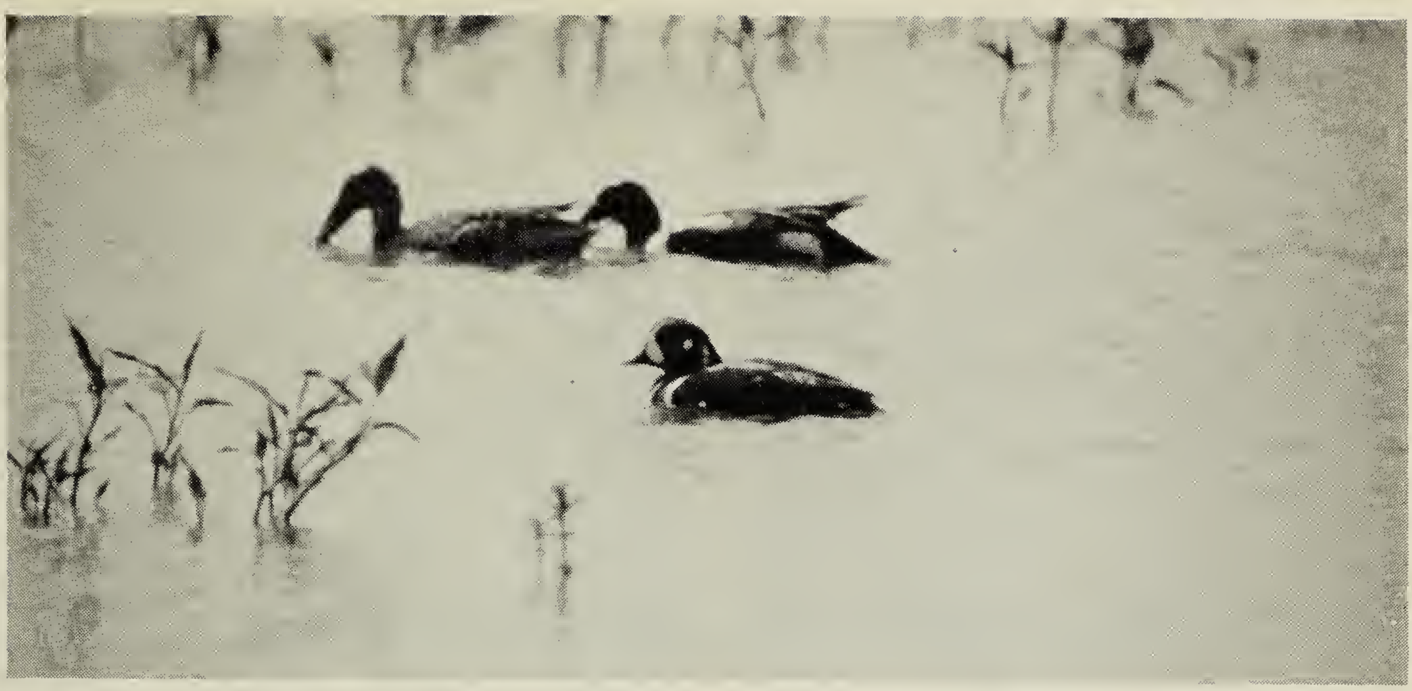

Photo by F. W. Lahrman

Male Harlequin Duck with Shovelers at Regina

beaches. These ducks may be seen climbing nimbly over the jagged, slippery rocks and ledges with the same ease and facility with which they ride the foaming crests of the sea. There is no weather too rough nor habitat too wild for these truly maritime little birds." The shallow pond in the flat Saskatchewan grainland presented the greatest possible contrast to the Harlequin's normal breeding range, the mountainous country of eastern Siberia and western North America from Central Alaska to northern California.

At 6:30 a.m. on the following morning I was at the pond, to find the drake still there, prospecting along the edges, dabbling under water like any self-respecting prairie duck. Presumably he found enough to eat by this means, although he may also have flown off on occasion to feed elsewhere. That morning I could plainly see the chestnut head stripes, which were pale chestnut in colour, and which appeared to be the same shade as that depicted by Kortright for the Western race of Harlequin Duck, a point, of course, which could only be determined by comparisons.

At times pairs of Gadwall, Shoveler and Mallard seemed also to find sustenance by dabbling in the mud. At any rate, our duck appeared to be hugely content. Each evening of the following Monday, Tuesday, Wednesday, Thursday and Friday the bird was there when I arrived, sitting serenely on his puddle. On a couple of occasions I observed him dabbling for whatever "small beef" (a delightful, all-inclusive, self-explanatory term of Dr. Ivan Sanderson) the pond afforded. (Since the species normally consumes about 98% animal matter, it is not sought by gunners.) I never saw him flap his wings, or preen, or stretch. For a spectacular fellow, he turned in a singularly dull performance. Had there been a Columbine to play to his Harlequin it would do doubt have been different!

When the last half of the week remained fine and sunny, I expected the duck to disappear and was glad to learn that Elmer Fox and Fred Lahrman had already taken pictures of him. At 6:00 a.m. on Friday, June 11 he had indeed gone—I could not see him among the weeds in the pond, nor was there any good cover nearby—but when I checked the rapidly shrinking puddle twelve hours later he was back on station. He was not there Saturday, either at 4:30 p.m. or 7:00 p.m., but Elmer Fox told me he was there at two separate times on Sunday, June 13. This was our last record of his appearance.

BIRDS OF WILDCAT HILL WILDERNESS AREA

by **Stan Shadick**, Saskatoon

The following 100 species of birds were seen May 22 - 24, 1971, in or around the Wildcat Hill Wilderness Area by Dr. and Mrs. Jim Jowsey, Mr. and Mrs. Jim Hogg, John Shadick, myself, and by others from Regina, Moose Jaw and Saskatoon:

Red-necked Grebe; Western Grebe; Pied - billed Grebe; White Pelican; American Bittern; Mallard; Pintail; Green-winged Teal; Blue-winged Teal; American Widgeon; Shoveler; Redhead; Ring - necked Duck; Lesser Scaup; Common Goldeneye; Bufflehead; Ruddy Duck; Red-breasted Merganser; Goshawk; Sharp - shinned Hawk; Red-tailed Hawk; Ferruginous Hawk; Marsh Hawk; Pigeon Hawk; Sparrow Hawk; Ruffed Grouse; Sora; American Coot; Killdeer; Spotted Sandpiper; Greater Yellowlegs; Lesser Yellowlegs; Pectoral Sandpiper; Semipalmated Sandpiper; California Gull; Bonaparte's Gull; Common Tern; Rock Dove; Mourning Dove; Barred Owl; Saw-whet Owl; Ruby-throated Hummingbird; Belted Kingfisher; Yellow-shafted Flicker; Pileated Woodpecker; Yellow - bellied Sapsucker; Hairy Woodpecker; Downy Woodpecker; Northern 3-toed Woodpecker; Eastern Kingbird; Eastern Phoebe; Least Flycatcher; Horned Lark; Tree Swallow; Bank Swallow; Barn Swallow; Purple Martin; Gray Jay; Blue Jay; Black-billed Magpie; Common Raven; Common Crow; Black-capped Chickadee; Red-breasted Nuthatch; House Wren; Brown Thrasher; Robin; Hermit Thrush; Starling; Warbling Vireo; Black - and - white Warbler; Orange - crowned Warbler; Yellow Warbler; Chestnut - sided Warbler; Blackpoll Warbler; American Redstart; House Sparrow; Western Meadowlark; Yellow-headed Blackbird; Redwinged Blackbird; Baltimore Oriole; Brewer's Blackbird; Common Grackle; Brown - headed Cowbird; Rose - breasted Grosbeak; Evening Grosbeak; Purple Finch; Pine Grosbeak; Pine Siskin; American Goldfinch; Red Crossbill; Savannah Sparrow; Vesper Sparrow; Slate-colored Junco; Chipping Sparrow; Clay-colored Sparrow; Harris' Sparrow; White - throated Sparrow; Lincoln's Sparrow; Song Sparrow.

YELLOW-THROATED WARBLER SIGHTING AT WEYBURN

by **Robert Kreba**, Weyburn

The Yellow-throated Warbler *(Dendroica dominica)* has apparently never been reported in Saskatchewan and it is a rare bird in Canada. Godfrey (1966) records a single specimen from St. John's, Newfoundland and two sight records from Niagara Falls and Manotick in southern Ontario; he warns: "To be identified in Canada with caution."

I wish to report a sighting of a pair of Yellow-throated Warblers at about 6:30 a.m. on May 16, 1970 at Weyburn, Saskatchewan. That day there was only a slight morning chill, and at 9:00 a.m. it was already too warm to wear a coat. The sky was for the most part clear, with some cloud along the horizon, especially in the southwest. Clouds to the east occasionally blocked full sunlight, but only for brief periods, and the wind was low.

Most of my observations that morning were made in the southeast section of the city and the surrounding marshes and countryside. Observations were made with 7 X 35 power binoculars. I first noticed the two warblers from a distance of about 10 yards in a low bush in a row of large trees beside the Souris River. This was in Riverside Park, a campground on the outskirts of the city with no surrounding streets or houses.

As Myrtle Warblers had been abundant that morning I paid little attention to the two birds at first, assuming that they were Myrtles. A moment's observation, however, made two things immediately obvious: lack of a yellow rump-patch, and the fact that the throat and upper chest were bright yellow, not white with the typical black breast band of the Myrtle. Closer inspection revealed other diagnostic markings: black mottling along the flanks, a white superciliary stripe as well as a white patch behind the ear coverts, two wing bars, and tail spots. The absence of the Myrtle's yellow crown and flank patches further aided in clinching the identification of the two warblers as Yellow-throated Warblers. The *white* head markings, yellow (not orange) throat and chest, and white wing bars (not a wing patch) distinguished them from the similar Blackburnian Warbler.

My companion that morning, Farrell Hall of Weyburn, also observed most of these features as I pointed them out to him, and we both agreed that the birds matched Singer's illustration in our *Birds of North America* (Robbins *et al*, 1966: 265). When I got home I checked other reference books and these further confirmed the identification.

The two Yellow-throated Warblers were tame and relatively inactive, moving along the branches in a somewhat creeper-like fashion, unlike the sprightly activity of the Myrtle and Yellow warblers. These two birds never sang while under observation, although other birds in the vicinity were in full song.

How these warblers (which were probably a pair, although it's difficult to distinguish the sexes in this species) got as far north of their range as Weyburn is a mystery. Griscom and Sprunt (1957), Pough (1949), and Robbins *et al* (1966) give the most northern limit of distribution of this species as southern Wisconsin. This would mean that a distance of over 1500 miles, on a direct line from Weyburn to Wisconsin, would have had to have been travelled by these birds. If, as is possible, they originated from the western population of the species, of which the northerly limit is southeastern Nebraska, they would have had to travel even further.

Recent years have shown an increase in the number of sightings of warblers of similar eastern ranges, such as the Prothonotary, Blue-winged, Golden-winged and Parula warblers. Perhaps this sighting is further support of the possibility that these eastern species are gradually extending their ranges westward. It seems more likely, however, that this was just a case of migrants overshooting the mark. It would be interesting to know whether any other sightings of this species were made in this region last year.

LITERATURE CITED

Godfrey, W. E. 1966. Birds of Canada. Natl. Mus. Can. Bull. 203, Ottawa.

Griscom, L., and A. Sprunt, Jr., 1957. The warblers of North America. Devin-Adair Co., New York.

Pough, R. H. 1949. Audubon land bird guide. Doubleday and Co., Garden City, N.Y.

Robbins, C. S., B. Broun, H. S. Zim and A. Singer. 1966. Birds of North America. Golden Press, New York.

ANOTHER SASKATCHEWAN COLONY OF FORSTER'S TERN

by **Wayne** and **Don Renaud**, Rosetown

The list and accompanying map in the article by Gerrard and Whitfield (*Blue Jay*, 29:19-22) did not include an important colony of Forster's Terns on Jackfish Lake, although two other smaller colonies were recorded in nearby locations (one at a marsh south of Murray Lake in 1935, and one at a marsh 10 miles north of Meota in 1959). On July 3 and 4, 1970, we explored a colony located in a small, marshy bay about three-quarters of a mile south-southwest of Aquadeo Beach, and located at least 37 nests. Most of the nests were empty, but some contained eggs or young. We do not believe that we found all the nests, for the colony appeared to extend beyond the portion that we searched. Judging by the number of adults, we estimated that the colony had between 50 and 100 pairs of terns — which would make it one of the largest Forster's Tern colonies in Saskatchewan.

SUMMER RECORDS OF HUDSONIAN GODWITS NEAR SASKATOON, SASKATCHEWAN

by **J. B. Gollop,** Saskatoon

This note reports the occurrence of large numbers of Hudsonian Godwits *(Limosa haemastica)* outside the usual route and timing of their southward migration.

In the summers of 1970 and 1971 members of the Saskatoon Natural History Society noted Hudsonian Godwits on Porter Lake (52° 12′ x 106° 17′), 11 miles east-northeast of Saskatoon. This "lake" is an alkali flat about two miles long and averaging less than half a mile in width. It does not always have water through August but did in these two years. The lake is more than 99% devoid of emergent (and probably submergent) vegetation.

In 1970, seven Hudsonian Godwits were noted on June 27. Other counts by the writer were: eight on July 5, eight on August 10, 81 on August 12, over 45 on August 19, 59 on August 23, and two on September 5. In 1971, the first record was for July 10—336 Hudsonians. There were 487 birds (plus about 60 unidentified godwits) on July 14. On July 15, 616 Hudsonians (plus 77 unidentified) were counted with J. A. Wedgwood. By July 21 there had been another increase, 847 (plus 212 unidentified) being counted with W. C. Harris. There was not a Hudsonian Godwit on Porter Lake or on two similar sloughs within seven miles to the south of it on July 28. However, two Hudsonian Godwits were seen on a slough 30 miles southwest of Saskatoon on July 31.

In both years the Hudsonians were mixed with Marbled Godwits *(Limosa fedoa)*, for which the high count in 1970 was 260 birds on August 12 and 19, and in 1971, 359 birds on July 14. On July 28, 1971, there were five Marbled Godwits on the lake. At least ten other species of shorebirds had also noticeably declined in numbers from the previous week. The number of ducks (dabbling and diving species) on the area during this period dropped from approximately 4000 to approximately 400.

While the godwits occurred in mixed flocks in 1971, one species usually outnumbered the other in a flock by at least two to one. Marbled Godwits tended to be around the edge of flocks dominated by Hudsonians. On all three days when the birds were counted (between 6:15 a.m. and 8:00 a.m.), 80 percent or more of the concentration was within 200 yards of the east shore, feeding continuously in shallow water of an estimated depth of from one to two inches.

Hudsonian Godwits are known to breed in two widely separated areas of the Arctic: in the northwest corner of the Mackenzie District and along the Manitoba and Ontario coasts of Hudson Bay (Godfrey, 1966). Godfrey describes the southward migration of both populations as being "remarkably concentrated, passing down the west coast of Hudson and James bays in a lane only a few miles wide." After concentrating there, most of the birds apparently make a 3,000-mile non-stop flight over the Maritime Provinces, probably landing in northern South America, en route to southern Argentina and Chile (Hagar, 1966). Godfrey does not report the species even as accidental in the southern Prairie Provinces on fall migration — July through October for this species. Salt and Wilk (1958) state that, while it is a regular migrant in spring with up to 21 birds being seen at one time, "the fall migration through Alberta is less regular." A review of the Northern and Southern Great Plains regions (roughly the Prairie Provinces to the interior of Texas) in *Audubon Field Notes* and *American Birds* for the period June 15 - November 30 from 1961 through 1970 produced seven records: five godwits on three September-October dates at Beaverhill Lake, Alberta (Hatch, 1968, 1969), one in

North Dakota on July 15 and 25, 1963 (Nero, 1963), and one in Kansas on September 26, 1965 (Williams, 1966). Other "fall" records for the Great Plains include July 21 at Big Stick Lake, Saskatchewan, and July 10 in South Dakota (no numbers, Bent, 1927), five August-October dates for Kansas and Oklahoma, the largest number of birds apparently being four (Sutton, 1967), and from one to 16 birds near Regina, Saskatchewan, during the last week of October, 1950 (Belcher, 1961). Miss M. Belcher has kindly supplied an unpublished record: a single Hudsonian with approximately 20 Marbled Godwits near Regina on July 9, 1968 seen by A. and B. Binnie.

The appearance of anything more than a straggler away from the breeding grounds in July is apparently exceptionally early. Hagar (1966) states, on the basis of data from various sources covering a period of several years up to and including 1965, that "from the 17th (of July) on, adult Hudsonian Godwits gather on the tidal flats of Hudson Bay and begin to move southeastward. Those individuals which have been guarding chicks are thin, while others, whether sub-adults or unsuccessful nesters, are already putting on fat . . . By 23-26 July the vanguard of adults is well down the west coast of James Bay . . . Within a day of two of 5 August, the first juveniles appear . . . For a week or 10 days in mid-August, virtually the whole species, old and young, is concentrated in a coastal strip only a few miles in width but stretching a thousand miles in length, from Eskimo Point . . . north of Churchill to the foot of James Bay . . . The last two weeks of August see the main departure of adults from the southern end of James Bay . . . (young-of-the-year) leave . . . between 15 September and 10 October."

The Saskatoon dates do, however, fit in with one of Hagar's (1966) observations. In discussing "minor aspects" of departure, he states: "A number of small mixed flocks of godwits, Short-billed Dowitchers, and Stilt Sandpipers — from 15 to 55 in a flock — appeared suddenly on the 29th of [June, 1962] . . . and dropped from sight again by 3 July." July reports, other than those given above for birds south of the breeding grounds, include: late July arrival on islands in the Gulf of St. Lawrence (L. C. Sanford in Bent, 1927), one bird on July 13, 1952 in Mexico (Binford, 1970), and a flock of 1,000 near Buenos Aires, Argentina, on July 2, 1880 (Gibson, in Wetmore, 1927).

While there is no current estimate of the total populatin of Hudsonian Godwits, the number on Porter Lake, probably 1,000 birds on July 15, is among the largest noted in the literature in the last 30 years. Although the species occurred in "bands of thousands" on the wintering grounds a hundred years ago, Wetmore (1927) could find only about 50 in the same area in 1921. Hope and Shortt (1944) reported that "at least 1,000 birds passed our camp" on James Bay, July 23, 1942, and 200 more on July 24. The bird has long been considerd rare but Fisher, Simon and Vincent (1970) state that it was out of danger by 1958. Hagar (1966) wrote that for James Bay "The peak (departure of adults) is usually a day or two either way from 23 August, and the number of birds passing a given point on the coast, between mid-afternoon and dark of a flight-day, sometimes exceeds three or four thousands." It is conceivable that the 1971 Saskatoon flock included as much as 10 percent of the population of the species.

Neither age nor sex was determined for the Porter Lake birds. Their colour varied from typical breeding plumage to winter pattern. Breeding data (Hagar, 1966; Jehl and Smith, 1970) exclude the possibility of their being young-of-the-year and make it improbable that they were adults that had successfully reared young in the years that they were seen. Considering what is generally accepted to be their migration route, it seems more likely that the Saskatoon birds originated from western rather than eastern Arctic breeding areas. There is apparently no information on whether or not all birds of this species normally breed when a year old. Nor are there weather data on hand at this time that might suggest that breeding was unsuccessful in some area in 1971.

It is also interesting that both species of godwits remained through August and into September in 1970. The most noticeable weather factor during the week in 1971 that the birds left was 2.8 inches of rain with strong north winds on July 24.

This movement into the Prairies may be something new in the life cycle of the species. There are no summer-fall Saskatoon records prior to 1970. It is, nevertheless, possible that a significant portion of the population has stopped over on a lake in the grassland-parkland sections of the Prairie Provinces more often than the records indicate.

The writer wishes to thank C. S. Houston and J. A. Wedgwood for comments on the manuscript.

LITERATURE CITED

Belcher, M. 1961. Birds of Regina. Sask. Nat. Hist. Soc., Spec. Pub. 3. 76 p.

Bent, A. C. 1927. Life histories of North American shore birds. Part 1. U.S. Nat. Mus. Bull. 142. 420 p.

Binford, L. C. 1970. Audubon's Shearwater, Hudsonian Godwit, and Long-tailed Jaeger in Oaxava, Mexico. Condor, 72-366.

Fisher, J., N. Simon, and J. Vincent. 1969. The red book — wildlife in danger. Collins, London, 368 pp.

Godfrey, W. E. 1966. The birds of Canada. Nat. Mus. Canada. Bull. 203. Queen's Printer, Ottawa. 428 p.

Hagar, J. A. 1966. Nesting of the Hudsonian Godwit at Churchill, Manitoba. Living Bird, 5:5-43.

Hatch, D. R. M. 1968. Northern Great Plains Region. Audubon Field Notes, 22:54-57.

Hatch, D. R. M. 1969. Northern Great Plains Region. Audubon Field Notes, 23:70-74.

Hope, C. E., and T. M. Shortt. 1944. Southward migration of adult shorebirds on the west coast of James Bay, Ontario. Auk, 61:572-576.

Jehl, J. R. Jr.. and B. A. Smith. 1970. Birds of the Churchill Region, Manitoba. Man. Mus. Man and Nature Spec. Pub. 1. Winnipeg, Man. 87 p.

Nero, R. W. 1963. Northern Great Plains Region. Audubon Field Notes, 17:467-468.

Salt, W. R., and A. L. Wilk. 1958. The birds of Alberta. Queen's Printer, Edmonton, Alta. 511 p.

Sutton, G. M. 1967. Oklahoma Birds. Univ. Oklahoma Press, Norman. 674 p.

Wetmore, A. 1927. Our migrant shorebirds in southern South America. U.S. Dep. Agr. Tech. Bull. 26. 24 p.

Williams, F. 1966. Southern Great Plains Region. Audubon Field Notes, 20:64-66.

EUROPEAN WIDGEON SIGHTING AT CUMBERLAND HOUSE, SASKATCHEWAN

by **David T. Little**, Cumberland House

Three students and I observed a pair of European Widgeon at Cumberland House on May 7, 1971. The male was identified as a bird of this species; the female was presumed to be the same. The birds were first spotted swimming in a ditch on Cumberland Island. We first watched them from the car about 100 yards away, using two pairs of field glasses, 7 X 35 and 7 X 50. We then slowly approached to within 50 yards, at which distance we could see very easily the male's reddish head with the pale yellow forehead. The forehead marking was not so pronounced as that shown in the picture on page 76 of Earl Godfrey's *Birds of Canada*. The male's body was light greyish in colour; the female was more of a brownish colour on the breast than the male.

At this point a horse and rider scared the pair and they flew away. Though I watched the ditch for several weeks afterwards and also visited the surrounding sloughs, I did not see the ducks again.

Because I have hunted and watched ducks since I was a young boy, I can readily recognize most ducks of Saskatchewan. Also, we had Godfrey's *Birds of Canada* in the car with us and while watching the birds we carefully checked every duck. They were definitely European Widgeons.

SIGHT RECORD OF A SNOWY EGRET AT CYPRESS LAKE, SASKATCHEWAN

by **Wayne C. Weber**, Vancouver, B.C.

On June 19, 1970, at about 6:00 p.m., I had the good fortune to observe a Snowy Egret *(Leucophoyx thula)* at the Cypress Lake dam, south of Maple Creek, Saskatchewan. As I drove onto the dam, I flushed the egret, which was then about 75 feet from me, as well as several Great Blue Herons which accompanied it. The egret alighted about 250 feet away in the marsh below the dam. I observed the bird with 7x35 binoculars as it flew and with a 20x to 45x zoom telescope when it alighted. The egret appeared to be about half the size of the Great Blue Herons, and had a rather slender black bill and black legs. When it flew, I was able to see clearly the yellow feet contrasting with the black legs. The light was from behind me, providing excellent viewing conditions. I am familiar with all four species of North American egrets, and at the time was just returning from a vacation trip to California and Texas, where I had seen numbers of Snowy Egrets together with other species of herons.

Apparently the only previous records of Snowy Egrets in Saskatchewan are several sight records in 1956 (W. Anaka, *Blue Jay* 14:89-90, September 1956). Joyce Gunn saw a Snowy Egret at Spirit Lake, May 23-29, 1956, and Anaka saw the bird on May 26. George Ledingham, in an addendum to Anaka's article, notes that Snowy Egrets were seen on July 9, 1956 and several other dates by Mr. E. Fox and Mr. A. Swanston near a Common Egret nesting site in the Qu'Appelle Valley east of Craven. Snowy Egrets are also listed as casual in occurrence in Montana (Clifford V. Davis, *Birds of Montana*, Montana Fish & Game Department, undated). Unfortunately the species must still be considered hypothetical in Saskatchewan until a specimen or recognizable photograph is obtained.

I wish to thank Dr. C. Stuart Houston for help with this note.

INFORMATION WANTED ABOUT HAWKS, TREES AND "GOPHERS"

Saskatchewan readers are asked to contribute information concerning hawk populations and land use over the years.

For the Ferruginous Hawk, does it still nest in your area, or when did it last do so? Has anyone seen this species nest successfully except where there was at least a square mile of pasture nearby with good numbers of "gophers" (Richardson's Ground Squirrels)?

For the Swainson's Hawk, is the Saskatchewan range identical with the range of the Richardson's Ground Squirrel (as the Atlas of Alberta shows for our neighboring province)? Have you records of the Swainson's Hawk or Richardson's Ground Squirrel in summer north of Number 5 Highway (Lloydminster - Kamsack)? Has Swainson's Hawk moved north as land has been cleared? Or have they decreased in your district, and if so, has the Red-tailed Hawk increased at the same time?

For the Red-tailed Hawk, has it moved south or increased in numbers as poplar "bluffs" grew up in the forty years following control of prairie fires? Which present "parkland" areas were virtually open prairie in the early days?

Hawks have been legally protected in Saskatchewan since 1960, but are they still being persecuted in your area?

Anyone with information concerning any of these questions is asked to contact **Dr. Stuart Houston** at 863 University Drive, Saskatoon.

GREAT GRAY OWL RECORDS WANTED

Anyone who has unpublished records of the Great Gray Owl in Saskatchewan is requested to send these to **Wayne Renaud**, Box 327, Rosetown, Saskatchewan. Information on location, habitat, date(s) seen and other details would be appreciated. The writer wishes to prepare a summary account for the *Blue Jay* on the occurrence of this species in the province.

CORRECTION

Authors of the article "Spotted Sandpipers as possible indicators of mercury contamination of rivers" in June, 1971, *Blue Jay* should be **Kees Vermeer** and **James A. Windsor.** The Editor regrets that Mr. Windsor's name did not appear with the article and expresses his sincere apologies for the omission.

BIOCIDES AND MAMMALS

by **Ralph D. Morris,** Brock University, St. Catharines, Ontario

The most frequently used chlorinated hydrocarbon insecticides are aldrin, DDT, dieldrin, endrin, heptachlor and toxaphene. Although their effectiveness in the control of insect pests has contributed significantly to human health and to the quality and quantity of commercial food and other crops (Jukes, 1963), we now have serious reservations about the advisability of continued widespread and uncontrolled use of them. Rachel Carson (1962) was the first to present the results of research studies in such a way that the attention of the layman (and of many scientists) was directed to the serious disruption of the environment caused by indiscriminate use of "control" chemicals. Despite many vigorous objections and denunciations, none of her major contentions has since been disproven.

It is an unfortunate fact that insecticides do not remain at the site of their application. DDT, for example, has become a ubiquitous contaminant, stored in the body tissue of even the most geographically isolated animals (Sladen *et al*, 1966) and suspended on particles of soil in air and water around the globe (Abbott *et al*, 1965; Risebrough *et al*, 1968). Increased use of other chlorinated hydrocarbons will undoubtedly result in their distribution equalling that of DDT as all have essentially similar chemical and physical properties. As all are virtually insoluble in water but readily soluble in many organic solvents and in fatty acids, living organisms actively concentrate the chemicals in the lipid component of their body tissues. This means that when chlorinated hydrocarbons are introduced into an ecosystem for the control of insect pests they are selectively concentrated out of the physical components of the system, and into the "lipid pool" of the biological components (Rudd, 1964).

Chlorinated hydrocarbon insecticides are directly toxic to most animals because they block the synthesis or operation of enzymes necessary for the normal functioning of the nervous and muscular systems (O'Brien, 1967). This toxic interference is non-selective as it is not restricted solely to the "target" pest. Further, all these insecticides are indirectly lethal, particularly to vertebrates, by inducing the synthesis of other enzyme systems which disrupt the delicate balance of steroid hormone levels (Conney, 1967; Peakall, 1967). The ramifications of this action are most apparent in certain species of birds where the causes of the "thin-egg shell" phenomenon are now well established (Ratcliffe, 1967; Hickey and Anderson, 1968).

The essential point is that, owing to similarity in mechanism of action and in physical and chemical properties, all of the chlorinated hydrocarbon insecticides should more accurately be considered as BIOCIDES.

My concern here is to use evidence from field and laboratory studies to suggest ways in which chlorinated hydrocarbon biocides directly or indirectly disrupt the behaviour, reproduction and ecology of wild mammal populations. Reference is made to Hayes (1965) for a complete review of absorption, metabolism, storage, excretion and general physiology of these chemicals in mammals.

Effects on Mammals

When confined mammals are given daily doses of chlorinated hydrocarbon biocides in their food, much of the residue is stored in adipose tissue although some is metabolized or excreted. Under certain conditions of stress, such as cold or starvation, the stored residue may be released for circulation and subsequently lead to the death of the animal (Dale *et al*, 1962; Morris, 1968). Such direct cause of mortality is probably rare in wild populations, but there are more subtle ways in which the release of stored residue may affect the health of a population. Transfer through the mam-

For Sep/71 "The Blue Jay" (add to list in June/71 issue.)

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CARRICK, W. H.: NEST BOXES FOR BIRDS, paper 35¢. Provides simple construction hints for nest boxes and relates the types of nest boxes described to a large range of species, as well as describing wildlife studies in enough detail to arouse the interest of a wide range of age groups.

CARAS, R.: SOURCE OF THE THUNDER: The Biography of a California Condor, $7.25, illus., 5½ x 8. As recently as 150 years ago thousands of California Condors soared from the Mississippi Valley to the Pacific, yet only 50 now remain. This book is a sensitive, fictionalized but factual reconstruction of the condor's life history.

CHAPMAN, F. M.: HANDBOOK OF BIRDS OF EASTERN NORTH AMERICA, $5.25 (Dover reprint). The original field guide; it covers nearly 700 species in greater detail than usual. The Dover reprint has improved the format and adds a colour chart and map.

THE WARBLERS OF NORTH AMERICA, $3.75, illus. by Louis Agassiz Fuertes and Bruce Horsfall. Contributions of 37 leading naturalists have made this study of 55 species and 19 sub-species invaluable. A summary of general characteristics, distribution, plumage, migration, songs, feeding and nesting habits of each warbler are followed by individual life histories in full detail. Every species illustrated, male and female.

RAIGHEAD, J. J. & F. C.: HAWKS, OWLS AND WILDLIFE, $4.45 paper (Dover reprint). In this study of the predatory behavior of hawks and owls, the Craigheads present their findings after years of intensive field research. They conclude that predation is not a cruel and wasteful process, but is a natural biological control or regulator.

RUICKSHANK, A. D.: A POCKET GUIDE TO BIRDS, paper, 60¢. This is a reasonably complete, handy bird guide, excellent as a giveaway to friends and children who come into contact with birds to spark interest.

E SCHAUENSEE, R. M.: BIRDS OF COLUMBIA, $11.00, 443 pp., 20 pls.(12 in color), 87 figs., 2 maps. The only handbook available in the English language for the birds of this unusually rich region. In all 2,640 species are listed and their more obvious differences noted; 344 species illustrated.

A GUIDE TO THE BIRDS OF SOUTH AMERICA, $21.00, 486 pp., 50 plates (31 in color), 21 figs, 1970, cloth. Presents a vast amount of information in a brief and readily accessible form. The 2924 species inhabiting South America are described, and the illustrations depict more than 600 of the 865 genera found there.

UNNING, J. S.: PORTRAITS OF TROPICAL BIRDS, $21.00, 4to size, 154 pp., 76 colored plates, 1970, cloth. A striking collection of color photos depicting tropical birds in brilliant plumage.

ASTMAN, W. R. & HUNT, A. C.: PARROTS OF AUSTRALIA, $13.50, 192 pp., 28 color plates, 16 pp. b.w. illus. This guide to field identification and habits of Australian parrots describes and illustrates a group of beautiful birds. Magnificent color work includes paintings and kodachrome spreads.

LLIS, M.: THE WORLD OF BIRDS, $6.95 SPECIAL PRICE (Orig. $10.00). This large (8½x11½), 140 pp., illustrated book contains a wealth of fascinating information. Every page contains photographs, either colour or b.w. An unusual feature is a chapter on bird artists and their work (including Lansdowne).

ARNER, D. S. & KING, J. R.: AVIAN BIOLOGY, Vol. 1, $32.00. This multivolume treatise is a comprehensive survey - written by international authorities - of the established facts and principles of avian biology. In particular, it reviews in detail a great amount of new information on the 8,600 living species of birds. Vol. 1 is concerned primarily with systematics, population biology, and ecology. Many other topics are discussed.

RSHAW, J. M.: AUSTRALIAN PARROTS $31.00, folio size, 320 pp., 77 pp. color paintings and photos. A new study of these respendent birds, ranging from the Port Lincoln Parrot to the Budgerigar.

ABRIELSON, I. N. & JEWETT, S. G.: BIRDS OF THE PACIFIC NORTHWEST WITH SPECIAL REFERENCE TO OREGON, $5.75, paper, 680 pp., 97 pls. Dover reprint. This is an unaltered republication of the Birds of Oregon, 1940. It applies to the broad area of the Pacific Northwest with its rich avifauna.

GODFREY, W. E.: BIRDS OF THE CYPRESS HILLS AND FLOTTEN LAKE REGIONS, SASK. 35¢ paper, 96 pp., 4 pl., 2 maps. Descriptions of the birds and country they inhabit as seen during the National Museum's expeditions of 1948.

(BIRDS OF CANADA) out of print but being reprinted. New price will be $15.00 it is understood.

GOODERS, J.: WHERE TO WATCH BIRDS IN EUROPE, $6.75, 293 pp., illus. This book gives details of the best bird-watching areas in 27 countries (Andorra and Leichtenstein not incl.) with data of routes, access, local societies, etc as well as the species to be expected at different seasons; many maps. An indispensable companion on that trip. A book to treasure and dream over

GROMME, O. J.: BIRDS OF WISCONSIN, $27.75, 236 pp., illus. with 105 full color plates of 328 species.

HAUSMAN, L. A.: MY BOOK ABOUT BIRDS, $2.50, hard, 8½x11, 32 pp., juv. An introduction to the songbirds of America, with detailed illus. in color. Even the smallest child can learn to recognize birds using this book.

HAVERSCHMIDT, F.: BIRDS OF SURINAM, $39.25, 500 pp., 60 pls. (40 in color) 150 text illus. The first complete book on the ornithology of Surinam, or Dutch Guiana. With colored plates illustrating 537 species.

HEADSTROM, R.: A COMPLETE FIELD GUIDE TO NESTS IN THE UNITED STATES, $11.00. Includes nests of birds, mammals, insects, fishes, reptiles & amphibians. 493 pp., 49 photos, 1970, cloth.

BIRDS' NESTS, A FIELD GUIDE, $5.25, hard cover. 128 pp., 61 photos.

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HICKEY, J. J.: PEREGRINE FALCON POPULATIONS, THEIR BIOLOGY AND DECLINE, $13.50, cloth. Once the prized favourite of medieval falconers, this study attempts to establish the cause of the decline of peregrine and bird populations everywhere.

HILL, R.: AUSTRALIAN BIRDS, $18.95, 4to size, 281 pp., 300 color pls. A lavish book, with all birds illustrated in color. Describes 700 species and includes classification and check-lists. SPECIAL PRICE (Orig. $36.00)

HINDWOOD, K.: A PORTFOLIO OF AUSTRALIAN BIRDS, $21.00, 62 pp., 11x14, 25 color pls. by W. T. Cooper. Here, with an imaginative precision that no camera could emulate, the artist has captured the special character and background of 25 of Australia's more interesting and beautiful birds. A page of lively, comprehensive and informative text accompanies each illustration

HOUSTON, C. STUART & STREET, M.: THE BIRDS OF THE SASKATCHEWAN RIVER, CARLETON TO CUMBERLAND, $1.50, paper. (SNHS Spec. Pub. #2). This is a finely annotated list of 259 species, with excellent historical research.

IVOR, H. R.: I LIVE WITH BIRDS, $6.95. "This must be one of the most enjoyable books to come along this year - or any year." (Hamilton Spectator). "This enchanting book will be a constant pleasure and reference for all those who are fortunate enough to have it as part of their nature library." (Robert F. Gunn, Naturalist Review)

JOHNSGARD, P. A.: HANDBOOK OF WATERFOWL BEHAVIOR, $13.75, 392 pp., 20 photos., 96 drawings. The behavior patterns of ducks, geese and swans, illus. basic postures and movements and comparing behavioral variations with difference in anatomy, ecology, and evolutionary relationships.

WATERFOWL: THEIR BIOLOGY AND NATURAL HISTORY, $10.50, 375 pp. 150 photos (59 color). Written for the layman as well as the biologist, it covers distribution, migration, ecology, food, behavior, plumages and other subjects.

KORTRIGHT, F. H.: DUCKS, GEESE AND SWANS OF NORTH AMERICA, $9.50 cloth, 484 pp. 36 col. pls. by T.M. Shortt; figs., maps. Perhaps the most important hand book on waterfowl ever published. A unique reference book; a joy to read.

LAND, H. C.: BIRDS OF GUATEMALA, $11.00, 300 pp., 44 pp. in color & b.w. Intended for field use.

LANSDOWNE, J. F. & LIVINGSTON, J. A.: BIRDS OF THE EASTERN FOREST Vol. 1 $20.00 BIRDS OF THE EASTERN FOREST Vol. 2 $22.50; BIRDS OF THE NORTHERN FOREST $20.00. Both author and artist are justly famous throughout the English-speaking world for these magnificent folio volumes with paintings of birds by Lansdowne, accompanied by a page of descriptive text by John Livingston.

LONGRIDGE, J.: CHINESE BIRD PAINTINGS, $13.50, illus. The basis of this selection of plates is an album of bird paintings produced during the Ch'ing Dynasty and the latter half of the Ch'ien Lung period (1736-1796), and commissioned by a member of the Imperial Household from an unknown artist.

MATHEWS, F. S.: FIELD BOOK OF WILD BIRDS & THEIR MUSIC, $3.25 paper, Dover reprint., 369 pp., 71 pls. 127 species covered, with musical scores.

MATHEWSON, R.: BIRDS - a HOW AND WHY WONDER BOOK, 59¢, paper, juv. The author is Curator of Science, Staten Island Institute of Arts and Sciences. It is almost unbelievable, the wealth of factual information which has been introduced into the 48 profusely illustrated 8½x11 pp. in this book.

MILNE, L. & M.: NORTH AMERICAN BIRDS, $29.95, 384 pp. 9x12, illus. This magnificent volume contains beauty, sensitivity, and scientific accuracy. A definitive study of the most popular of all animal subjects, birds, it covers the complete range of species found on this continent.

NELSON, B.: GALAPAGOS: ISLANDS OF BIRDS, (SPECIAL PRICE $5.25 - Orig. $7.95). 333 pp., profusely illus. with photos and drawings, foreword by H.R.H. The Prince Philip, Duke of Edinburgh. This book combines serious nature study with readable prose. Bryan Nelson and his wife spent a year on the Galapagos. He describes their months of isolation in lively text.

NERO, R. W.: BIRDS OF THE LAKE ATHABASCA REGION, SASKATCHEWAN, $2.50 paper.
BIRDS OF NORTHEASTERN SASKATCHEWAN, paper $2.00.
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NICE, M. M.: THE WATCHER AT THE NEST, $1.80, Dover reprint, paper. A popular, genial and charming account of research carried out in the highest traditions of science - the story of two song sparrows observed during eight years of intensive study. "A monument to the patience and persistence of a keen observor and careful historian." ("Natural History")

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ALL THREE can be made more useful with Index Tabs and plastic jackets.

PETERSON, R. T.: HOW TO KNOW THE BIRDS, 95¢ paper. This is a handy, well-illustrated guide to the birds. The expert shows how to make bird-identification quick and accurate by noting key markings, silhouettes and flying styles, as well as habits and peculiarities.

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POOLE, E. L.: PENNSYLVANIA BIRDS: AN ANNOTATED LIST, cloth, $5.00. 103 pp., 74 drawings, 34 maps.

PETTINGILL, O. S.: ORNITHOLOGY IN LABORATORY AND FIELD, $12.50, 4th ed. 4to size, 542 pp., 30 pls. This work incorporates the more important recent advances in knowledge of avian ecology, speciation, migration, physiology, and breeding biology. An important source book for any level of student.

RAND, A. L.: ORNITHOLOGY, AN INTRODUCTION, paper $1.50. This comprehensive survey of the biology of birds emphasizes the evolutionary aspects that have given birds their dominant place in nature. Excellent avian science.

REED, C.: NORTH AMERICAN BIRDS EGGS, paper $4.10. This is the comprehensive work on this subject. Thoroughly revised by Cornell, with all material brought up to date in accordance with the AOU 1957 Checklist. Dover reprint.

ROY, J. F.: BIRDS OF THE ELBOW, mimeo 75¢. This is a publication of S.N.H.S. describing in a preliminary way the birds of the elbow of the Saskatchewan River, much of which is now flooded by Lake Diefenbaker.

SANGER, M. B.: CHECKERBACK'S JOURNEY: THE MIGRATION OF THE RUDDY TURNSTONE, $4.95, 7½x10½, 150 pp., many drawings. Checkerback is a Ruddy Turnstone migrating from Brazil up the coast of North America to Greenland. Following his flight, the author tells the fascinating story of the ecology of the entire Atlantic seacoast, discussing birds and other wild creatures.

SAUNDERS, A. A.: AN INTRODUCTION TO BIRD LIFE FOR BIRD WATCHERS, $1.50, paper, Dover reprint, 250 pp., illus. with drawings. Here is a fine, readable introduction to birdwatching, giving the reader much basic information about 160 species. It can be used before advancing to specialized books.

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HARLAND, M.: A TERRITORY OF BIRDS, $2.75, cloth, 232 pp., many b.w. photos. The author spent two years in Australia's Northern Territory, culminating in a search for the near-extinct Night Parrot. We get a striking picture of the country and the people who live there. SPEC. PRICE $2.75 (was $4.75)

TUPKA, A.: NOTES ON THE BIRDS OF GREAT SMOKEY MOUNTAINS NATIONAL PARK, $3.75, paper, 212 pp., map. This is a well organized annotated bird check-list.

YMONS, R. D.: HOURS AND THE BIRDS, $12.50, cloth, 256 pp., 16 colour plates. In this book the author reveals his intimate knowledge of the habits, movements, personalities and beauty of prairie birds, many of which are the subjects of his own paintings illustrating this outstanding volume.

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HOMAS, A.: BIRD AMBULANCE, $8.75. Living in a suburb of New York, Mrs. Thomas made friends with a wild bird that came to her feeder and when it was injured nursed it back to health. This led to work with the bird-saving corps of the Audubon Society. A charming, humerous book.

N TYNE, J. & BERGER, A.: FUNDAMENTALS OF ORNITHOLOGY, $4.00, paper (Dover). Contains complete treatment of the breeding biology of birds, presents a critical summary of plumages, and provides a modern review of the theories of bird behavior, song, migration, feeding habits, etc.

ENS, JOHN A.: AN APPROACH TO THE STUDY OF ECOLOGICAL RELATIONSHIPS AMONG GRASSLAND BIRDS, paper, $3.35. Meadowlarks and grass sparrows were studied on an 80-acre prairie at Madison, Wisc., to develop and test a method for describing and analyzing habitats which would be useful in elucidating ecological relationships among grassland birds.

M, H. S. & GABRIELSON, I. N.: BIRDS - A "Golden Nature" Guide to the most Familiar American Birds, paper, $1.50, picturing 129 birds in full colour.

PLANT AND TREE BOOKS

ST, K. F.: & BUDD, A. C.: COMMON WEEDS OF THE CANADIAN PRAIRIES, paper, $1.00. Some 180 plants are included and each one has a written description and a simple line drawing. The key will aid in identifying plants while small.

AKE, S. F. & ATWOOD, A. C.: GEOGRAPHICAL GUIDE TO THE FLORAS OF THE WORLD, Part 1 (Africa, Australia, N. America, S. America, and Islands of the Atlantic, Pacific and Indian Oceans), $7.00, 336 pp., 1942 (reprint). No list of the scope of this one has ever been published. Its aim is to furnish an annoted catalog of all the now useful floras and floristic works, including those in periodical literature, that list or describe the complete vascular flora (or the phanerogams only) of any region or locality

NNER, J. & GALSTON, A. W.: PRINCIPLES OF PLANT PHYSIOLOGY, $8.25, 499 pp., 219 illus., 1952. The authors have written a text which will be useful to students in the applied fields of botany as well as those interested in plant physiology itself. ("The American Naturalist")

ACKMAN, ZIM, et al: TREES OF NORTH AMERICA - A Guide to Field Identification. limp $4.50, cloth $6.95. Like its companion BIRDS OF NORTH AMERICA, this book is fully illustrated in colour. An excellent identification aid.

RMICHAEL, L. T.: COMMON MARSH PLANTS OF SASKATCHEWAN, paper, 35¢. A Saskatchewan Museum publication, illustrated with b.w. drawings.

PRAIRIE WILDFLOWERS, cloth, $3.00. This is the most suitable first reference for prairie dwellers. Not technical, but accurate. Illus.

SASKATCHEWAN WILDFLOWERS: WESTERN AREA, paper, 80¢. Another Saskatchewan Museum publication, illus. with b.w. drawings.

WOODLAND WILDFLOWERS OF EASTERN SASKATCHEWAN, paper, 50¢ This SMNH publication completes a spread of guides for wildflowers made specially for this country.

DORE, W. G.: WILD RICE, paper, $2.00. The only cereal crop that grows wild in Canada, wild rice factual information was surprisingly sparse until this small volume appeared. It gives its botany, distribution, habitat, etc.

FLOCK, E. B.: WILD FLOWERS OF THE PRAIRIES, 85¢, paper. The description of each flower is given alphabetically under its common name. A sketch of each is included to aid in recognition.

HARP, H. F.: THE PRAIRIE GARDENER, $8.95, cloth. The CBC's Prairie Gardener has given us a comprehensive discussion of all aspects of the prairie garden. Mr. Harp, a professional, has spent 40 years on the prairies growin things and contributing to the study and development of hardy plants.

HOSIE, R. C.: NATIVE TREES OF CANADA, paper $5.00, cloth $8.00. This is an excellent reference on our native trees. The photos are clear and the descriptions well organized. We who make do with the older editions can see immediately the great advance this new edition has made. The added appendices themselves are worth the increase in price.

HUI-LIN LI: WOODY FLORA OF TAIWAN, $20.00, 974 pp., 371 illus, 6x9. A complet flora of the woody plants of Taiwan, with descriptions of 105 families, notes on distribution, uses, and habitats, with useful keys.

MILNE, L. & M.: LIVING PLANTS OF THE WORLD, $11.95 SPECIAL PRICE (was $17.95.) 340 illus. 176 in full color. Magnificent presentation of 150 species serving man as adornment, food, medicine, narcotics, etc. and history.

NATIVE PLANTS OF PENNSYLVANIA: A TRAIL GUIDE TO THE BOWMAN'S HILL STATE WILD FLOWER PRESERVE, $2.00, paper. A useful pocket guide to the native plant of the middle Atlantic region; 100 illus., some color, blooming date inde

NEUFELD, J. B.: WILD FLOWERS OF THE PRAIRIES, $3.50, paper, 8¼x9, cerlox bound. This is an album of 28 flower pictures in beautiful colour photos. A fine gift, and an excellent means to teach children flower recognition.

OPLT, J.: ORCHIDS, $5.95 cloth, SPECIAL PRICE, 8¼x10½, 139 pp. A book of incredible beauty, 56 full-page orchid portraits in full colour! The fir chapter gives the basic principles of orchid growing. More detailed data is given opposite each plate; 149 species described from 39 genera.

POPE, W. T.: MANUAL OF THE WAYSIDE PLANTS OF HAWAII, $7.25, 296 pp., 160 plate bibliog., cloth. The flora of Hawaii is particularly interesting because it largely consists of plants introduced from other parts of the world.

RICKETT, H. W.: WILD FLOWERS OF AMERICA, $8.95 SPECIAL PRICE, was $18.75. 400 flowers in full color, painted by Mary Vaux Walcott, with others by Doroth Platt. Detailed descriptions and full data on family, range, etc.

SEYMOUR, F. C.: THE FLORA OF NEW ENGLAND, $15.00, 612 pp. 7x10, 390 photos, cloth, glossary. This is the only comprehensive book on the flora of New England.

OTHER NATURAL HISTORY (incl. books on INDIANS)

ABBOTT, ZIM & SANDSTROM: SEASHELLS OF NORTH AMERICA, limp $4.50, cloth $6.95. A fact-filled book on seashells for all those spending time at the coast.

ABBOTT & ZIM: SEASHELLS OF THE WORLD: A GUIDE TO BETTER KNOWN SPECIES, paper, $1.50. A "Golden Nature" Guide giving a good picture of this study.

ADAMS, C. V. A.: COLLECTING FROM NATURE, $3.95, juv., 250 pp., illus. A book for young people who want to know how to begin collecting, preserving and mounting specimens - butterflies, beetles, fungi, etc, for display.

ALLEN, G. M.: BATS, $4.00, 378 pp., 58 illus. Dover reprint. Considered one o the most comprehensive works on Bats ever published.

ANDREWS, R. C.: NATURE'S WAYS: HOW NATURE TAKES CARE OF ITS OWN, $6.49 BONANZA reprint (Orig. $11.95), 144 illus., 72 color reproductions of paintings. The strange and wonderful ways in which Nature's creatures have equipped themselves for survival. An exceptional book for all the family.

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EBE, B. F.: AFRICAN APES, $4.75, juv. In this book packed with information about African apes, a popular husband-wife naturalist team provides a wealth of information about the personalities and characteristics of them.

CK, W. H.: A GUIDE TO SASKATCHEWAN MAMMALS, 50¢, paper. SNHS Spec. Pub. #1. Gives the occurrence details of every mammal recorded for the province.

RAM, B.: DINOSAURS (a "Quiz-me" book), paper 59¢. 48 pp., 4x6½. Essential facts briefly but well told for youngsters, ending with a quiz.

EEKER, S.: INDIANS (a "Quiz-me" book), paper 59¢. Another in the series presenting solid information, ending with a knowledge test.

HLKE, J. E. & CHAPLIN, C.C.G.: FISHES OF THE BAHAMAS, $30.50, 880 pp., illus. 7½x10. This is the first major scientific study of the fishes of the Caribbean waters in over 30 years; 32 col. pls. 700 drawings, 500 species.

REAL INSTITUTE, UNIV. OF ALBERTA: IMPLICATIONS OF NORTHERN MINERAL RESOURCES MANAGEMENT FOR HUMAN DEVELOPMENT, $2.00. Report of a symposium.

NNER, J. T.: THE IDEAS OF BIOLOGY, paper, $1.75. The book centralizes the ideas of biology around four of its parts, evolution, cells, genetics, development (of complex organisms). Very readable for laymen.

OWN, V.: AMATEUR NATURALIST'S HANDBOOK, cloth $2.69 (SPECIAL, was $5.95). 200 illus, 475 pp. Compact guide, describes rocks and minerals, how to collect plants, animals, weather forecasting, etc. etc. etc.

RGESS, T. W.: BURGESS BOOK OF NATURE LORE, $2.69 (SPECIAL, was $5.95), cloth, juv. 26 stories of how animals and plants make the most of life told in charming style with lots of real natural history.

THE CROOKED LITTLE PATH, $2.00 (SPECIAL, was $4.75), cloth, juv. 26 delightful stories about the animal characters we all know, Peter Rabbit Buster Bear, Prickly Porky, Little Joe Otter, and others.

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ILLEUX, A.: ANATOMY OF THE EARTH, paper $3.00, cloth $5.85. A concise general introduction to geology. It examines the earth's external and internal features, its evolution, and its place in the universe as a whole.

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mary glands for excretion in the fatty acid fraction of the milk of nursing females occurs in most mammals, including cows (Henderson, 1965), dogs (Woodward *et al*, 1945), rats (Radomski and Davidow, 1953), and human beings (Quinby *et al*, 1965). Suckling young are therefore directly exposed to potentially serious biocide levels early in their life. Further, at least two chlorinated hydrocarbons (DDT and dieldrin) are known to move across the placenta in dogs (Finnegan *et al*, 1949) and mice (Backstrom *et al*, 1965) and to accumulate subsequently in the adipose tissue, liver, reproductive organs and brain of the embryos.

The demonstration of excretion in milk and of transfer to unborn embryos has serious implications with regard to the reproductive biology of mammals exposed to even low residue levels in the field. Although the magnitude and expression of effect depends on several variables including the biocide itself, the species of mammal and the duration of exposure, laboratory studies suggest that aldrin, dieldrin, DDT and endrin all have essentially similar adverse effects on the reproductive biology of small mammals (Bernard and Gaertner, 1964; Morris, 1968; Treon and Cleveland, 1955). These effects include an increase in adult mortality and in either pre-natal or post-natal mortality of young, a decrease in the size and frequency of litters and a decrease in the number of pregnancies.

Residue contamination is not, of course, restricted to small mammals. However, the biological significance of residue levels found in large mammals is generally not so well known as it is in small mammals. The fat component in tissues of large mammal game species including wild mule deer, white-tailed deer, pronghorns and elk in Montana (Pillmore and Finley, 1963) and South Dakota (Greenwood *et al*, 1967) contains dangerously high residues of DDT (maximum, 42 ppm) and dieldrin (maximum, 4 ppm). It is noted here that the tolerance level set by the United States Food and Drug Administration (USFDA) for residue contamination in domestic livestock for human consumption is 7 ppm (DDT) and zero ppm (dieldrin). Parenthetically, by these standards citizens of the United States are unfit for human consumption. They carry, on average, a body burden of 13 ppm DDT and 0.15 ppm dieldrin (Hayes, 1964).

Trophic concentration (see Hunt, 1966) significantly increases the biocide load of species of predators. The effect becomes more serious if the vertebrate prey develops resistance to a biocide. Individuals from mouse populations with a history of exposure to biocides have developed resistance to DDT in the laboratory (Ozburn and Morrison, 1967) and to endrin in the field (Webb and Horsfall, 1967). The presence of resistant types in a population produces a biological product which is "poison bait" for any consumer, including man. Residents of Mississippi consume fresh-water green sunfish whose edible tissues contain up to 27 ppm endrin (Ferguson, 1967). The USFDA tolerance level for endrin in human food is zero ppm.

In addition to the stated specific instances of the effects of biocides on mammals, the major kinds of effects produced on populations of wild mammals are summarized in Figure 1. These include direct lethal and sublethal toxic effects, and indirect nontoxic effects. Such effects need not be restricted to local populations living in or near a chemical spray area, but can spread in time and space to affect populations far removed from the site of application.

The figure is generalized in that it could apply, if modified slightly, to most species of vertebrate. For example, McEwan & Brown (1966) working with Sharp-tailed Grouse demonstrated that a single sublethal dose of dieldrin caused changes in social hierarchy among males, and increased vulnerability to predators. Further, as different species of insects react differently to the same insecticide (Pimental, 1961), the pathways described need not apply equally to all vertebrate species.

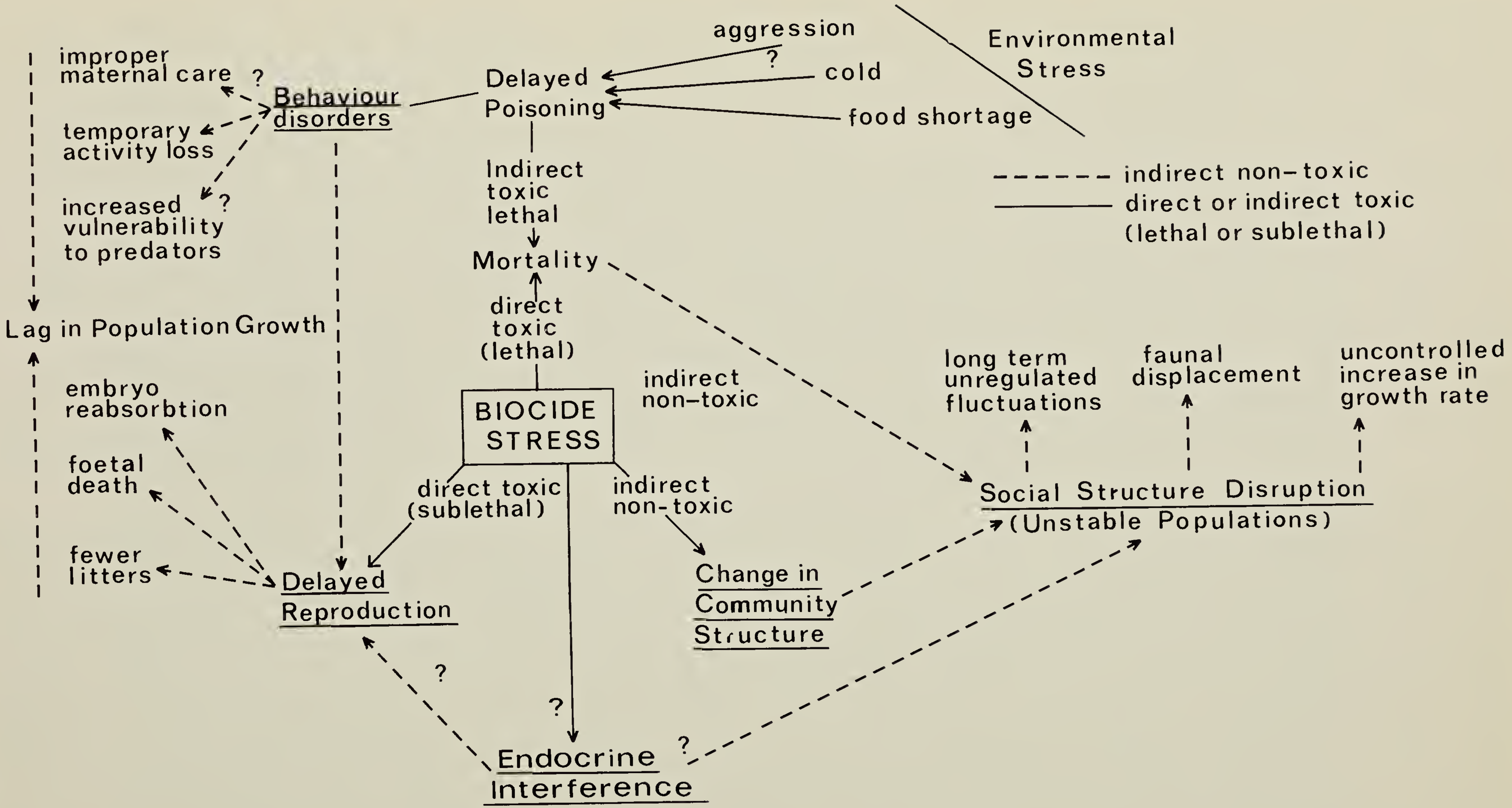

Figure 1. Generalized concept of the way in which a biocide may affect a non-target mammal population. Responses which have not been demonstrated in wild mammal populations are shown (?). Based partly on Barret (1968), Barret and Darnell (1967), Morris (1970), Rudd (1964), and Snyder (1963).

Conclusions

The government of Canada is to be commended for recent DDT control legislation. By this step, Canada joins a growing list of political regions, local and national, which have declared controls on the sale and use of DDT (see MacMullen, 1968; Mosquin, 1969). Twenty-five years of intensive research has established the basis for such legislation by demonstrating that DDT is a significant and dangerous environmental pollutant. The physiological and ecological actions of aldrin, dieldrin, endrin, heptachlor and toxaphene are actually or potentially more serious than those of DDT. It should be clear that the physiology of individual human beings and the ecology of human populations is sufficiently similar to those of other mammals that similar responses to chlorinated hydrocarbon biocides might be expected.

The weight of evidence is overwhelmingly against the continued practice of *uncontrolled* use of chlorinated hydrocarbon chemicals. Chant (1969) has already urged the government of Canada to "impose an absolute ban on the further manufacture, sale or use of DDT, aldrin, dieldrin, and heptachlor." A large portion of his resolution dealt with adverse effects on the health of man. I submit that the government of Canada need not further reserve judgment in the matter of meaningful legislative controls on all chlorinated hydrocarbon chemicals. The current practice of requiring a demonstration of actual or potential lethality to humans before taking action is unnecessary and should be abandoned.

The Minister of Health and Welfare of Canada and the Minister of Agriculture of Canada should be urged in the strongest possible terms to give thoughtful consideration to the following recommendations:

1) that the government of Canada recognize the similarities in the physiological and ecological actions of all chlorinated hydrocarbon chemicals and extend the existing DDT legislation to include aldrin, dieldrin, endrin, heptachlor and toxaphene.

2) that the government of Canada encourage the use of alternate chemicals which are less residual than the chlorinated hydrocarbons. In order that such a step be effective, the manufacture, sale and application procedures should be under strict government control so that purchase and use by private individuals will be better regulated.

3) that the government of Canada develop a program of cash incentives to encourage farmers to a) leave natural areas of grassland and woodland adjacent to food crop fields, and b) plant shelter-belts of native vegetation within and adjacent to food crop fields. It has been clearly demonstrated that over-simplification of an ecosystem by the removal of all natural vegetation (monoculture) encourages insect pest outbreaks (Cole, 1964; 1966; Egler, 1966). With this practice, ecological diversity is disrupted and instability is encouraged so that chemicals are not as effective as claimed. In fact, insect numbers may actually reach higher densities following biocide treatment (reviewed by Ripper, 1956). The reasons are related to development of resistance (Brown, 1958), to removal of competitor insect species (Pimental, 1961) or to reduction of predaceous insect species (Pickett, 1961). More reliance should be placed on natural controls or on the selective use of chemicals.

4) that the government of Canada recognize local or national legislative controls to be insufficient protection for a global environment already seriously threatened by a dangerously high load of chlorinated hydrocarbon and other insecticides (Wurster, 1969; see also, Erhlich, 1969). Presentation of a resolution to the United Nations encouraging a ban on all uncontrolled sale or use of the chlorinated hydrocarbon biocides is suggested. The expected defensive argument of "more insecticides to feed more people" is considered invalid (Paddock and Paddock, 1967).

LITERATURE CITED

Abbott, D. C., R. B. Harrison, J. O'G. Tatton, and J. Thomson. 1965. Organochlorine pesticides in the atmospheric environment. Nature, 208:1317-1318.

Backstrom, J., E. Hansson, and S. Ullberg. 1965. Distribution of C^{14}–DDT and C^{14}–dieldrin in pregnant mice determined by whole-body autoradiography. Toxicol. and Appl. Pharmacol., 7:90-96.

Barrett, G. W. 1968. The effects of an acute insecticide stress on a semi-enclosed grassland ecosystem. Ecology, 49:1019-1035.

Barrett, G. W., and R. M. Darnell. 1967. Effects of dimethoate on small mammal populations. Amer. Midl. Natur., 77:164-175.

Bernard, R. F., and R. A. Gaertner. 1964. Some effects of DDT on reproduction in mice. J. Mamm., 45:272-276.

Brown, A. W. A. 1958. The spread of insecticide resistance in pest species. Advances Pest Control Res., 2:351-414.

Carson, R. 1962. Silent spring. Houghton-Mifflin Co., Boston. 368 pp.

Chant, D. A. 1969. A petition requesting a ban on DDT and related pesticides. Submitted to Minister of Agriculture and Minister of Nat. Health and Welfare, 25 September, 1969. mimeo, 5pp.

Cole, L. C. 1964. Pesticides: a hazard to nature's equilibrium. Amer. J. Public Health, 54 (Suppl): 24-31.

Cole, L. C. 1966. The complexity of pest control in the environment. In: Sci. Aspects of Pest Control, NAS-NRC Publ. 1402:13-25.

Conney, A. H. 1967. Pharmacological implications of microsomal enzyme induction. Pharmacol. Rev. 19:317-366.

Dale, W. E., T. B. Gaines, and W. J. Hayes, Jr. 1962. Storage and excretion of DDT in starved rats. Toxicol Appl. Pharmacol., 4:89-106.

Egler, F. E. 1966. Pointed perspectives: pesticides in our ecosystem. Ecology, 47:1077-1084.

Ehrlich, P. 1969. Eco-catastrophe: Ramparts, 8:24-28.

Ferguson, D. E. 1967. The ecological consequences of pesticide resistance in fishes. Trans. North Amer. Wildl. Conf., 32:103-107.

Finnegan, J. K., H. B. Haag and P. S. Larson. 1949. Tissue distribution and elimination of DDD and DDT following oral administration to dogs and rats. Proc. Soc. Exp. Biol. and Med., 72:357-360.

Greenwood, R. J., Y. A. Greichus, and E. J. Hugghins. 1967. Insecticide residues in big game mammals of South Dakota. J. Wildl. Mgmt., 31:288-292.

Hayes, W. J., Jr. 1964. Epidemiology of pesticides. In: Proc. of a course on the occupational health aspects of pesticides. (E. Link and R. J. Whitaker, Eds.) Univ. of Okla., Norman. pp. 109-130.

Hayes, W. J., Jr. 1965. Review of the metabolism of chlorinated hydrocarbon insecticides especially in mammals. Ann. Rev. Pharmocol., 5:27-52.

Henderson, J. L. 1965. Insecticide residues in milk and dairy products. Residue Reviews, 8:74-115.

Hickey, J. J., and D. W. Anderson. 1968. Chlorinated hydrocarbons and eggshell changes in raptorial and fish-eating birds. Science 162:271-273.

Hunt, E. G. 1966. Biological magnification of pesticides. In: Sci. Aspects of Pest Control, NAS-NRC Publ. 1402:251-262.

Jukes, T. H. 1963. People and pesticides. Amer. Sci., 51:355-361.

MacMullen, R. A. 1968. The case against hard pesticides. Mich. Conserv., Jan-Feb: 1-6.

McEwan, L. C., and R. L. Brown. 1966. Acute toxicity of dieldrin and malathion to wild sharp-tailed grouse. J. Wildl. Mgmt., 30: 604-611.

Morris, R. D. 1968. The effects of endrin feeding on survival and reproduction in the deer mouse, Peromyscus maniculatus. Can. J. Zool., 46:951-958.

Morris, R. D. 1970. The effects of endrin on Microtus and Peromyscus. I. Unenclosed field populations. Can. J. Zool., 48:695-708.

Mosquin, T. 1969. Governments move to ban chlorinated hydrocarbons. Can. Field-Nat., 83:189-190.

O'Brien, R. D. 1967. Insecticides, action and metabolism. Acad. Press, N.Y. 332 pp.

Ozburn, G. W., and F. O. Morrison. 1962. Development of a DDT-tolerant strain of laboratory mice. Nature, 196:1009-1010.

Paddock, W., and P. Paddock. 1967. Famine—1975! Little-Brown, Boston.

Peakall, D. B. 1967. Pesticide-induced enzyme breakdown of steroids in birds. Nature, 216:505-506.

Pickett, A. D. 1961. The ecological consequences of chemical control practices on arthropod populations in apple orchards in Nova Scotia, Canada. Proc. 8th Tech. Meeting, Intern. Union for Conserv. of Nature and Nat. Res., Warsaw (1960): 19-24.

Pillmore, R. E., and R. B. Finley, Jr. 1963. Residues in game animals resulting from forest and range insecticide applications. Trans. North Amer. Wildl. Conf., 28:410-422.

Pimental, D. 1961. An ecological approach to the insecticide problem. J. Econ. Ent., 54: 108-114.

Quinby, G. E., J. F. Armstrong and W. F. Durham. 1965. DDT in human milk. Nature, 207:726-728.

Radomski, J. L., and B. Davidow. 1953. The metabolite of heptachlor: its estimation, storage and toxicity. J. Pharmacol. Exptl. Therapeut., 107:266-272.

Ratcliffe, D. A. 1967. Decrease in eggshell weight in certain birds of prey. Nature 215:208-210.

Ripper, W. E. 1956. Effect of pesticides on balance of arthropod populations. Ann. Rev. Entomol., 1:403-438.

Risebrough, R. W., R. J. Huggett, J. J. Griffin, and E. D. Goldberg. 1968. Pesticides: transatlantic movements in the northeast trades. Science, 159:1233-1236.

Rudd, R. L. 1964. Pesticides and the living landscape. Univ. of Wisc. Press, Madison. 320 pp.

Sladen, W. J. L., C. M. Menzie, and W. L. Reichel. 1966. DDT residues in Adelie penguins and a crab-eater seal from Antarctica: ecological implications. Nature, 210:670-673.

Snyder, B. D. 1963. The effects of endrin on vole (Microtus pennsylvanicus) reproduction in bluegrass meadows. Ph.D. Thesis, Ohio State Univ., 119 pp.

Treon, J. F., and F. P. Cleveland. 1955. Toxicity of certain chlorinated hydrocarbon insecticides to laboratory animals with special reference to aldrin and dieldrin. J. Agri. Food Chem., 3:402-408.

Webb, R. E., and F. Horsfall, Jr. 1967. Endrin resistance in the pine mouse. Science, 156: 1762.

Woodward, G., R. R. Ofner, and C. M. Montgomery. 1945. Accumulation of DDT in the body fat and its appearance in the milk of dogs. Science, 102:177-178.

Wurster, C. F. 1969. Chlorinated hydrocarbon insecticides in the world ecosystem. Biol. Conservation, 1:123-129.

MOOSE AT ESTLIN

Photo by F. W. Lahrman

Female moose 15 miles southeast of Regina, July 13, 1971

On the morning of July 13, 1971, Mr. Wilf Brandt phoned Mr. M. K. Baker, Curator of the Saskatchewan Museum of Natural History, to report a moose feeding in a slough on his farm, 1½ miles north of Estlin. Hoping to obtain photos of the moose, I soon arrived on the scene. Mr. Brandt's sons told me that the moose had left an hour ago and pointed north.

Recent heavy rains had left the fields in a very muddy condition so I checked the first east-west road one-half mile north for tracks which would reveal where the moose had crossed. I found them, surprisingly, right at a farm yard. The moose had crossed the road and walked right past the house.

I must have looked exactly like somebody looking for a moose for as I wheeled into the yard, the lady of the house stepped out and pointed to the shelterbelt of poplars. There was a cow moose, peering out from behind the trees with her big ears fanning. The moose then ran in a long swinging trot across the open fields, again heading north. Acting on a hunch, I drove to the next farm a mile away anticipating her arrival at their shelterbelt. I announced casually that a moose was coming and that I was trying to get a photo. Immediately, people were running in all directions. Sure enough, the moose soon arrived, still trotting at a mile-eating pace. I was able to obtain a few photos but the moose was wary — probably sensing the activity — and shied away.

She continued travelling at the same steady pace for approximately six miles and I was able to keep track of where she went by travelling devious roads that surrounded the fields. At one point, she casually trotted past a farm where the startled farmer was loading grain. She was last seen when she stopped at a slough approximately two miles east of the Brandt farm.

Moose and elk have been seen before, but very rarely, on the Regina plains. Approximately 10 years ago, Mr. F. G. Bard observed two moose south of Regina Beach. An elk was photographed at Richardson, July 1, 1966, by Robert R. Taylor (see *Blue Jay*, 24:156). It is not known where they come from, but I assume that they may have strayed from the Moose Mountain area.—*F. W. Lahrman*, Saskatchewan Museum of Natural History, Regina.

ALBINO GOPHERS

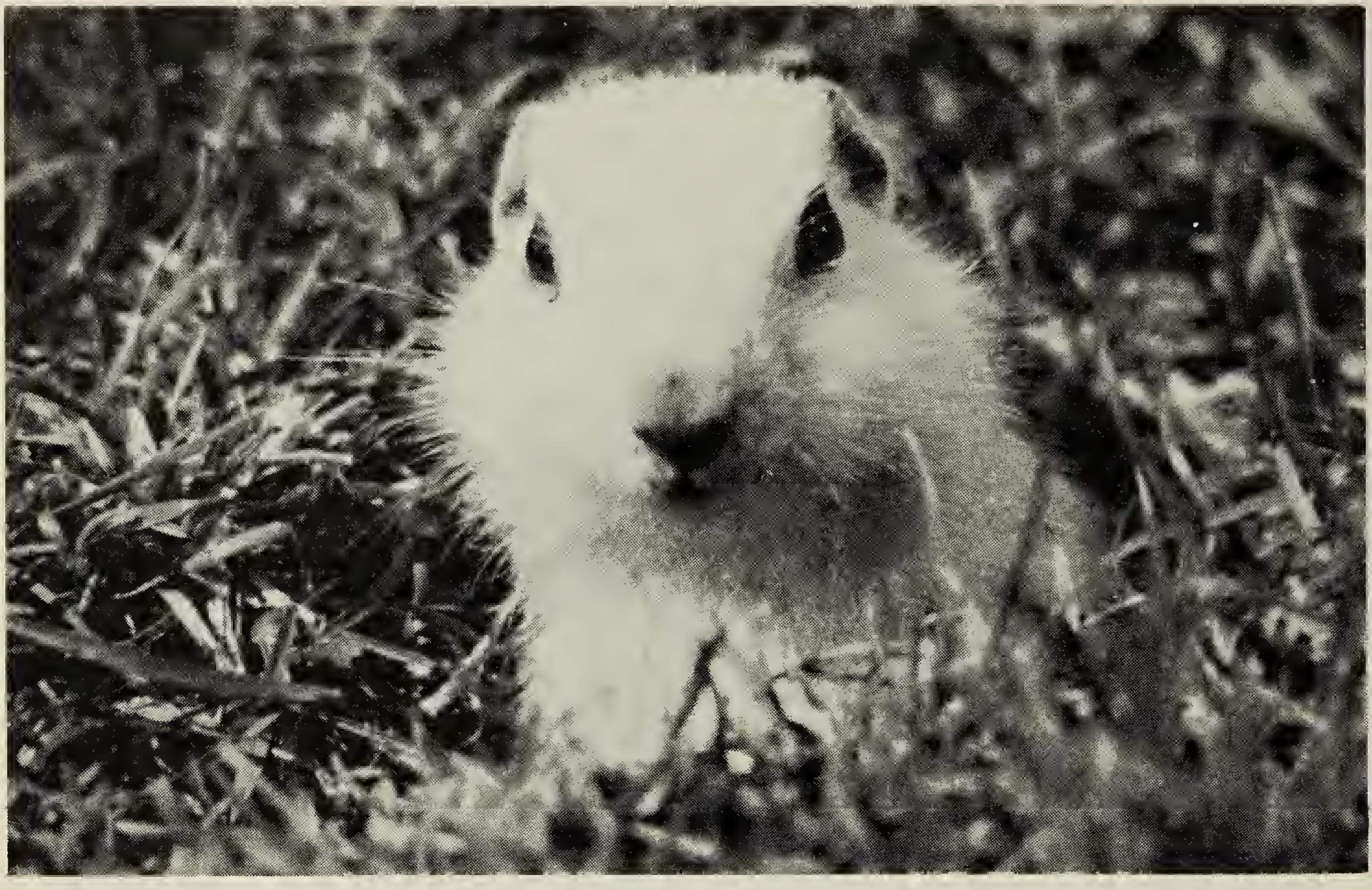

Photo by Joan Dew

Albino gopher at Lacombe, Alberta

A family of albino gophers (Richardson's Ground Squirrel) was noticed on June 6 on a farm a few miles north of Lacombe, Alberta, land location SW15-41-26-W4. At this time all four of them were around one hole but a few days later they moved into separate holes. I first saw them on June 12 when I observed that they were pure white except for a small black patch at the tip of the tail and that their eyes were pink. They seemed considerably tamer than normally coloured gophers and with a little patience I managed to get very close to one and even touched it without alarming it. The enclosed photograph is a picture of one of these gophers.—*Joan Dew*, Box 394, Lacombe, Alberta.

POSSIBLE OCCURRENCE OF COUGAR NEAR FORT SMITH, N.W.T.

by **E. Kuyt,** Canadian Wildlife Service, Fort Smith, N.W.T.

Mr. D. Bohnet of Fort Smith, N.W.T., informed me that on August 30, 1970 he and his wife had briefly observed two cougars *(Felis concolor)* about five miles south of the Parson's Lake fire lookout tower in the northern part of Wood Buffalo National Park. The geographic location of the sighting would be about 59°50′N, 112°25′W. The animals were seen at a distance of about 50 yards and appeared to be of equal size. Mr. Bohnet thought that in size they approximated that of a large dog. He did not see any spots or markings but did note the animals' long tails and general light tan colouration.

Another resident of Fort Smith, Mr. M. Hewitt, had told me some time ago that on March 17, 1967 he had seen a large cat standing on the edge of the road, about 12 miles north of Hay

Camp, Wood Buffalo National Park. Mr. Hewitt thought it was easily the largest lynx he had ever seen but as he approached in his car the animal turned and bounded across the ditch into the woods, and it was then that Mr. Hewitt observed the cat's long tail. Mr. Hewitt believed the animal to be about the size of his medium-size Alsatian dog, although somewhat more stocky in build.

I also recalled a much earlier report of a cougar and I was able to contact two of the observers who were still residing in Forth Smith. Of these two observers, Mrs. D. Fowler had never seen a cougar before but Mr. G. Dexter, the other observer, had seen cougar in British Columbia. Mrs. Fowler informed me that her neighbour had first seen the cougar in the summer of 1962 near her residence at the foot of Axe Handle Hill in Fort Smith. Mr. Dexter had been summoned to kill the animal which had taken refuge in a poplar. When Mr. Dexter drove up, the cougar jumped from the tree and bounded up Axe Handle Hill, to the chagrin of some of the bystanders but to the relief of the others. The cougar was not seen again but its tracks, easily visible in the sandy soil, were examined by Mr. G. Douglas, then Acting Superintendent of Game for the N.W.T.

The presence of cougar in our area must be regarded as exceedingly rare. It is of considerable interest, though, that white-tailed deer *(Odocoileus virginianus)* have recently increased in the Fort Smith area. I previously reported two sightings of these deer within 12 miles of Fort Smith as well as observations of deer tracks (Kuyt, *Blue Jay* 24(4), 1966). Since then, I have obtained nine additional sight reports of white-tailed deer (three each in 1967, 1968 and 1969). These observations were made at widely scattered points, varying from 0-65 air miles from Fort Smith and included sightings of male and female deer as well as fawns. Duplication of observations may have occurred in one or two sightings. A mule deer *(Odocoileus hemionus)* was observed in late July, 1968 about 65 miles south of Fort Smith. There is no doubt, then, that deer, one of the favourite foods of cougar, are present in small numbers in our area. With varying hare *(Lepus americanus)* currently nearing the peak of their cyclic abundance, alternate food resources are also available for cougar. It is hoped that in our area where livestock are practically non-existent, cougar will remain unmolested. This magnificent carnivore would be a valuable addition to the fauna of Wood Buffalo National Park.

Photo by Fenton Vance

Gaillardia

WHAT IN THE WORLD?

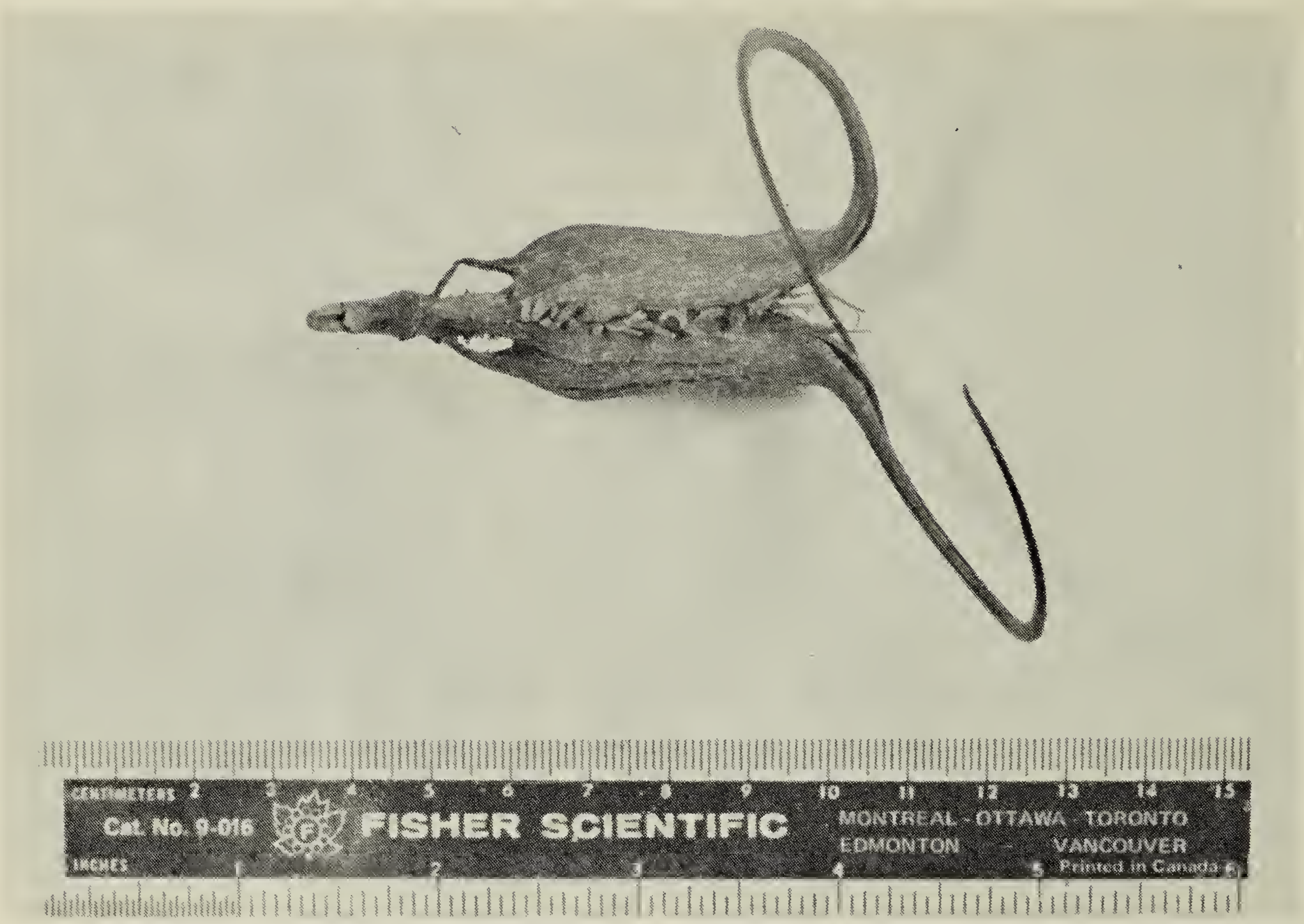

Photo by Keith Best

Can any of our readers identify the object pictured here? We provide you with two clues to its identity: the specimen was received from the Regina Research Station of the Canada Department of Agriculture and it was found in the tail of a horse shipped north into Canada from the United States.

In the next issue of the *Blue Jay* we shall publish the correct answer and summarize our readers' responses.

The Blue Jay Bookshelf

SASKATCHEWAN INDIAN HERITAGE: THE FIRST TWO HUNDRED CENTURIES. By Zenon Pohorecky. Published by the Extension Division, University of Saskatchewan, Saskatoon, 1970. 54 pp. Illus. $2.00.

This booklet is actually the first in a series that will describe the cultures of all tribes native to Saskatchewan. This first volume deals with all the prehistoric peoples and with three tribal groups historically present but living elsewhere today. The series is evidently intended for the general reader, for pre-University instruction, and for those wishing some basic information on Saskatchewan's Indian people. As such, the series will make a real contribution and the University is to be commended for undertaking the project. This first volume offers as ready and readable a synthesis of data on prehistory as the casual reader is likely to get without delving into the more serious literature of site reports, ethnographies, etc. One could imagine this booklet's being used to good purpose in elementary and secondary schools, by visitors to historic Indian sites, and by lay study groups. Dr. Pohorecky has appended an excellent reading list for those wishing to pursue their interests further.

As in all works meant to compile and digest complex bodies of fact, there has been a certain amount of condensation and simplification. Some of the author's fellow scientists will likely object to this, but it is hard to see how these modifications could have been avoided. Further, considering the series' intended audience and the booklet format adopted, a broad treatment seems more appropriate than the carefully detailed approach of a technical report.

On the other hand, one can feel more serious concern over the author's occasional tendency to speak figuratively. At times, this can be charming, as when we hear of "paddle-in art galleries" — a reference to rock paintings by lakes throughout the Shield. At other times, though, a glib phrase is misleading. For example, we hear that "high priests from the southeast—met virtually head-on with the independent men from the northwest." It is well known that influences from the faraway Ohio River valley did extend into southern Manitoba and Saskatchewan, and there even seems to have been some indirect trade, but nowhere is there any direct evidence that this contact included movements of people. Dr. Pohorecky knows this as well as anyone else, and surely he was speaking figuratively. Yet the implication is there and we can almost imagine a Jeffreys-like illustration of these Hopewell priests, bedizened in pearls and copper, as they crash local society on the Qu'Appelle.

By and large, however, the text is well-written and filled with much good general data. The illustrations are numerous, well-chosen, and attractive. Unfortunately, the juxtaposition of the two is not always satisfactory. In many cases, the illustrations are not pertinent to the adjacent text. Further, the layout is often cluttered and distracting. It was interesting to note that the booklet could almost be read twice: first the text and secondly the numerous illustration captions. These latter make a second narrative by themselves, and detract from the coherence of the main text.

These criticisms are not major ones, and the booklet's good points do certainly over-balance them. I do feel this booklet (and hopefully the whole series) can be used widely by students in schools and by the general reader to their profit.—*Richard Conn,* The Heard Museum, Phoenix, Arizona.

VERTEBRATE PESTS: PROBLEMS AND CONTROL. PRINCIPLES OF PLANT AND ANIMAL PEST CONTROL. Volume 5. 1970. By the Subcommittee on Vertebrate Pests, Committee on Plant and Animal Pests, Agricultural Board, National Research Council (U.S.A.). National Academy of Sciences, Washington, D.C. 153 pp.

The stated objective of this series (p. iii) "was to outline, for each of the several classes of pests, the principles of control where these are established; to call attention to effective procedures where true principles are not yet established; and to indicate areas of research that appear to warrant early attention." Volume 5 considers pest situations involving vertebrates.

After a brief foreword and preface, an introduction by R. A. McCabe, R. E. Lennon and E. L. Kozicky outlines the basic problem to be considered and mentions the participation of various scientific bodies in solving pest-man conflicts. Individual chapters (2 through 7) then outline pest situations involving given vertebrate groups, methods by which pest problems can be eliminated or reduced in each group, and potential dangers which may result from control methods. Each of these chapters contains a Literature Cited section and usually an appendix of common and scientific names of the animals discussed. These six chapters include: "Fishes in pest situations" by R. E. Lennon; "Amphibians and reptiles as pests" by J. C. Neess; "Birds in pest situations" by E. L. Kozicky and R. A. McCabe; "Small-mammal pest situations" by W. R. Eadie and N. B. Kverno; "Predatory mammals that become pests" by R. A. McCabe and M. Caroline; and "Pest situations involving big game" by R. D. Taber.

A chapter by McCabe, Lennon and Kozicky entitled "Where we stand" concludes the book.

In general, this book appears to have been well written and thoroughly researched. Certainly, all the major and most, if not all, minor "pest" situations involving vertebrates are at least mentioned, and the difficulties involved in controlling these problems without adverse side effects are well presented. In spite of the number of authors, the chapters are consistently readable and appear to have been equally well researched. Typographical and editing errors are fewer than in many books of comparable length (I encountered only four, all relatively minor).

The only major improvement that I feel could be made on the book is a re-organization of the subject matter. The organization used in considering pest situations by taxonomic group resulted in considerable repetition of basically similar problems with basically similar techniques and resultant dangers. In addition, discussions of some types of pest situations receive much more space than others. For example, problems involving predatory animals are repeated in several chapters in addition to comprising an entire separate chapter. On the other hand, in spite of the current intense amount of research on bird-aeroplane strikes (e.g. see Solman *et al*, 1971), only four pages are devoted to this important problem. I believe a preferable organization would treat pest situations individually, with problems involving various taxonomic groups being mentioned under each situation if appropriate. This could include such topics as: predators, damage to native and artificial habitats, damage to man-made structures, problems resulting from introductions of animals into new areas, and transmission of disease. I should point out that all these topics are treated in the book, and my comment on the organization is not intended to imply that any topic is treated poorly.

Two major points emerged both from the book as a whole, and from the final chapter in particular. The first point involves the emphasis on considering pest situations as conflicts between man and some other species, rather than considering any given species as a "pest" in itself. This view is clearly stated in the definition of a pest situation on page 1 as one which "results when the activities of another vertebrate conflict with the interests or welfare of man . . . " and in the comment on page 147: "That an animal is a pest means that the environment has been altered." The reader is continually reminded that most "pest" situations are direct or indirect results of the activities of man, and that "control" should never involve elimination of the so-called "pest". Moreover, many situations involve conflicts between different groups of people, especially where methods used to "control" a situation of concern to one interest-group may create a situation of concern to another interest-group. Thus, on the whole, the book is in harmony with current ecological and conservation thinking. I did, however, detect a few lapses, such as the mention of hunting predators from planes for "sport" on page 123, without comment on the unsporting aspects of this form of "hunting." The inclusion of the prairie dog in a list of "quite palatable" species, whose good flavour should be publicized to encourage hunting (p. 96) hardly fits with current efforts to prevent the prairie dog's extinction! At the opposite extreme, the harmlessness of some species is over-stated. For example, the suggestion that the predatory reputation of the snapping turtle is based largely on its appearance (p. 53) may be true, but that "there is no evidence for any of it" is untrue, as snapping turtles are known to occasionally eat other animals, even birds (e.g. Alexander, 1921; Bent, 1921).

The second major point emerging from this book in the need for much more research before most "pest" situations can be truly resolved. Emphasis is placed on the need for a better understanding of the ecology of the problem species, and of the effects on "control" measures both on the environment and on other species.

In summary, I would recommend this book to anyone wishing a thorough but concise review of the basic problems which may involve vertebrate species in pest situations. The enlightened ecological approach to the subject is most refreshing in an age when bounties and poison bait are still not past history.

LITERATURE CITED

Alexander, E. G. 1921. Laughing Gull (Larus atricilla) captured by Snapping Turtle. Auk 38:596.

Bent, A. C. 1921. Life histories of North American gulls and terns. U.S. Nat. Mus. Bull. 113 (Dover reprint, 1963).

Solman, V. E. F., W. W. H. Gunn, M. T. Myres, S. R. Cannings, W. J. Richardson, J. M. Speirs, J. J. C. Kanitz, J. Novak, and H. Blokpoel. 1971. Studies of bird hazards to aircraft. Can. Wildl. Serv. Report Series, No. 14. Information Canada, Ottawa.

—*Martin K. McNicholl,* Winnipeg.

PESTICIDES AND WILDLIFE. 1971. By Richard Fyfe and J. A. Keith. Information Canada, Ottawa. 24 pp.

This booklet contains articles by two members of the Canadian Wildlife Service, R. Fyfe and J. A. Keith, in which the use and effects of certain pesticides, notably DDT and mercury, on wildlife are discussed.

Mr. Fyfe's article, pesticides and wildlife, summarizes current knowledge concerning DDT and mercury and states that nearly all samples of Canadian Wildlife analyzed during the past five years contained pesticide residues. The samples were taken from all parts of Canada including the Arctic and both migratory and resident species of birds were examined. Samples taken in Saskatchewan revealed that pesticide levels in the resident birds were similar or higher than those in migratory species which is a matter of great concern since it had been assumed that the migrating birds were bringing in the residues from outside Canada.

The ways in which pesticides can be dispersed are outlined and Mr. Fyfe states that in spray operations up to 90% of the chemical never reaches the intended target but is carried into the atmosphere to be deposited far from the spray area. This would account for the presence of pesticides in the Arctic in areas which have never been sprayed.

Persistence of pesticides in the environment and their incorporation into food chains is another area which is covered in this article. The fact that organisms can concentrate chemicals to high levels in their bodies has only recently been discovered, and requires further study because of its implications for the human species. Mr. Fyfe stresses that the environment in terms of volume and mass is constant but man frequently ignores this fact and causes great ecological damage by altering the balance of nature.

The final aspect of this article concerns the toxic effects, lethal and sublethal, of these chemicals. Little is known about the sub-lethal effects of pesticides particularly on species for which they were not intended to control. Some effects have manifested themselves notably the marked decrease in hatchibility of some birds due to the interference of DDT with egg shell development. Direct toxic effects on smaller organisms are also evident, for example minute quantities of DDT can kill brine shrimp in streams thus affecting food chains, and can also kill trout fingerlings. Even more drastic is the possible effect of pesticides on the photosynthetic activities of marine phytoplankton which contribute 70% of the oxygen we breathe. Destroying our principle source of oxygen can only have one result—Death to mankind as a species.

The second group of articles in this booklet deals with the toxic effects of pesticides and stress that man himself is subject to danger as a result of his consumption of lower animals. The potential dangers of DDT, mercury and the P.C.B.'s are stated and Mr. Keith is hopeful that the ban on DDT and mercury treated seed grain will reduce the levels of these chemicals in animal species. Some research work on the toxicity of mercury carried out by the Canadian Wildlife Service on the prairies is described including work on the Prairie Falcon and Her-ring Gull in southwest Saskatchewan. The problem of developing adequate screening tests and of measuring impact effects of pesticides on the environment is stressed and the author calls for more research in these areas.

Two points occurred to me on reading this booklet:

1). On what basis are safe levels for humans determined? Perhaps man can adapt to and tolerate quite high levels of these chemicals without harm. To cite an example, no one knows what the background levels of mercury in humans were before research work began on this substance. Analyses of fish which had been preserved for 50 years showed levels higher than are now deemed "safe" by our experts. At the present time uninformed "scare" articles in the popular press are misleading the public.

2). One wonders with all the emphasis on pesticide effects on animals if any research has been carried out on spray drift affecting rare plants?

This booklet provides an excellent summary of the work carried out on pesticides and wildlife in Canada up to end of 1970. It is very readable and provides valuable background information both for the scientist and non-scientist.

One criticism is that Mr. Keith's articles tend to be repetitive and perhaps some other views on the subject of pesticides might have been included. —*E. McCann*, Regina.

SCIENTIFIC ACTIVITIES IN FISHERIES AND WILDLIFE RESOURCES. A Background Study for the Science Council of Canada. 1971. By D. H. Pimlott, C. J, Kerswill and J. R. Bider. Information Canada, Ottawa. 191 pp. $3.50.

The Science Council of Canada, now a Crown Corporation, has the duty to assess Canada's scientific and technological resources, requirements and potentialities and to make recommendations concerning these to the Prime Minister. This report studies the areas of fisheries and wildlife and emphasizes the fact that maintaining high-quality environments throughout the world is vital to man's continuing survival. The book is written by three experts in their fields but they have obviously consulted with many specialists and refer frequently to the background papers on fisheries and wildlife in *Resources for tomorrow conference*, Vols. 1 and 2, 1961.

Having recently considered (in a brief on Prince Albert National Park) the long-term need of preserving the health of the ecosystems in our National Parks I found it valuable to read this book which deals not with a limited area but with the total environment. Canadian naturalists in general and fishery and wildlife ecologists in particular are acutely aware of the degradation of the environment. "The fish fauna of the Great Lakes has been completely altered in a decade." Some species of birds, mammals and other animals, and, no doubt plants too, are vanishing. The authors believe that "the diversity of species [should not] be destroyed in a questionable quest to feed 50 billion people in an overcrowded world which would be unfit to live in."

It is proposed that we adopt as a major national goal the restoration and maintenance of a stable and healthy environment. "Man shares this earth with a variety of other life. All use the same general environment as man, and are influenced variously by man's modification and frequent degradation of that environment." To achieve this goal we must develop an ecological conscience in society and in order to do this we must realize that the problems requiring solution are physical and social as well as biological.

Man frequently attempts to evaluate things in economic terms. The Canadian Government in 1961, in attempting to give a dollar value to wildlife, defined a hunter as one who had hunted for at least an hour during that year. R. Y. Edwards is quoted as saying, "Any survey of naturalists in Canada, based on the same sort of broad definition, would turn up almost as many naturalists as there are Canadians." R. D. Symons is quoted as saying, "I can only wish for all my readers the many happy hours spent in watching birds that I have had." But in addition to recreational and economic values fish and wildlife also have therapeutic, artistic, ecological and educational values. In a statement concerning the educational value of wildlife I. McT. Cowan is quoted: "Each [living organism] offers a potential enrichment of human knowledge and enjoyment that is limited only by our capacity to appreciate."

Chapter IV of *Scientific activities in fisheries and wildlife resources* deals with the economic aspects of fisheries and wildlife. The section on fisheries is forthright in its analysis. Although it has frequently been thought, the book points out, that the fishery resources of the seas were inexhaustible, it seems obvious now that overfishing is a real threat to the fishing industry and that forward planning is therefore needed. According to the authors birdwatching and nature photography can even be given an economic value. Extrapolation from M. T. Myres' study in the Calgary Bird Club in 1966 lead to the conclusion that Canadians spend some $162 million on these non-consumptive uses of fish and wildlife. Since this is about half the market value of commercial fisheries in Canada, birdwatching and nature enjoyment should receive considerable government consideration.

Chapter V deals with "organization for research, management and development." To date government agencies are concerned mainly with the harvest of fisheries and wildlife; university research studies supported by such agencies tend to dwell on those species which have economic importance. Although there is some indication of improvement in such an attitude at the federal level, at the provincial level the non-consumptive values of fisheries and wildlife are still not recognized. A closer co-operation between federal and provincial governments is obviously needed in research and management of both resources.

The next chapter deals with the international aspects of fisheries and wildlife. Although many treaties have been signed, some animals are not adequately managed. The Migratory Birds Treaty does not provide adequate basis for management or protection of migratory birds. For example, it does not provide protection for endangered species such as the Peregrine Falcon and the Bald Eagle. Canada (through its Natural History Societies and other interested groups) should make a thorough study of the section of the BNA Act dealing with fishing in our coastal waters and of the Migratory Birds Treaty in order to initiate appropriate changes.

Chapters VII and VIII (pp. 87-131) discuss scientific activities in fisheries and in wildlife. It is impossible to give an adequate summary of these two key chapters which every naturalist should have on his shelf. As most of us know, research on wildlife is very recent (nearly all post-dating World War II). Though it is now sophisticated, there is still much to learn especially in regard to diseases, parasites and environmental needs. The authors say, for example, that support of research on the effects of pesticides on wildlife has been inadequate. They point out that in spite of rapidly increasing research on waterfowl the resource has "steadily declined, with a low point reached in 1968." They maintain that a complete reappraisal of the present approach to waterfowl research and management is needed and they offer some concrete suggestions.

The remaining three chapters are titled: Education and the use of resources; Influence of resource development on fisheries and wildlife; Getting the job done. Like preceding chapters, each is well-organized and contains many challenging ideas. One minor fault of the book is that though nearly every page has several footnotes, sometimes these are not so complete as one would like.

In this review of *Scientific activities in fisheries and wildlife resources* I have attempted to summarize for readers of this journal a number of the ideas presented because I believe that the authors have looked appraisingly at scientific activities in fisheries and wildlife resources and that they have offered frank and constructive criticism. We welcome readers' opinions on the arguments presented in this provocative book.—*G. F. Ledingham*, Regina.

THE DELTA MARSH. 1971. By Peter Weller Hochbaum. Department of Mines, Resources, and Environmental Management (Conservation Extension Branch), Winnipeg, Man. 52 pp. Distributed free by the Delta Research Station, Delta; the University of Manitoba Field Station, Delta; and the Conservation Extension Branch, 139 Tuxedo Blvd., Winnipeg 29.

The Delta Marsh is of world-wide renown, and this little booklet tells why in a simple, popular way. The first eight pages are devoted to introducing the Marsh, its wildlife, and the types of research carried on there. This introduction is then followed by descriptive species lists of the birds and mammals of the marsh and adjacent areas. In addition, there are short lists giving dates of the spring arrival, spring and summer shifts, and late summer and fall movements of Delta waterfowl. The records and comments are drawn from the author's personal observations, the records kept at the Delta Waterfowl Research Station from 1939 to 1970, and from personal observations of Peter Ward, H. Albert Hochbaum and Louis Ducharme of the Research Station, and Dr. Frank McKinney of the University of Minnesota, who kept careful records of migration 1952-63. For the mammal records, the author has also consulted an unpublished manuscript on the mammals of the Delta Marshes by D. D. Moore (1965), and an article published in 1962 by J. R. Tamsitt in the *Canadian Field-Naturalist* (76:71-78), "Mammals of the Delta Marsh region of Lake Manitoba."

THE DELTA MARSH
by peter weller hochbaum
DEPARTMENT OF MINES, RESOURCES AND ENVIRONMENTAL MANAGEMENT
HON. SIDNEY GREEN Q.C. Minister W. WINSTON MAIR Deputy Minister

Few regions in North America have been studied more intensely than the Delta Marsh, which has two biological stations gathering information on the biology of marshes and their wildlife. The better known of these is of course the privately-sponsored Delta Waterfowl Station which studies mainly the ecology of ducks, geese and swan; it was originally established to return ducks to the marsh for hunting, but was taken over in 1938 by the North American Wildlife Foundation and expanded to its present stature. The second research centre is the University of Manitoba Field Station established in 1965 to study the dynamics of marsh ecosystems.

The booklet is obviously intended to tell the lay public what the Delta Marsh is and what is going on there, in a style that consciously and completely avoids the technical jargon of the waterfowl management specialist. The picture-evoking prose reveals an artist's eye, as well as the black-and-white sketches with which the booklet is freely illustrated, and one is reminded that the author's father is the artist-writer-naturalist, Al Hochbaum (whom we once had the pleasure of hearing in Regina in a series of lectures on the writer's craft). Although Peter Hochbaum grew up at Delta among waterfowl biologists, the vocabulary of the trade is dropped when he creates for us the ambience of the prairie marsh with lines like these: "On calm spring evenings when a south wind blows, one may stand on the lake ridge and watch small parties of ducks pass continuously overhead against the prairie twilight, heading in a northwesterly direction for their home somewhere beyond the horizon."

In its engagingly simple presentation, this bulletin represents an interesting departure from the usual type of bulletin distributed by a government agency to publicize its programmes.—*Margaret Belcher*, Regina.

THE INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

by **C. F. Bentley,** Professor of Soil Science, Edmonton

The International Development Research Centre (IDRC) is the result of an idea of the Rt. Hon. L. B. Pearson who, as Prime Minister of Canada, suggested that the Expo site of the 1967 World's Fair in Montreal would continue to serve mankind if it were used as headquarters for work devoted to development problems. Although not located in Montreal, the IDRC is now in existence and operational.

The Act establishing the Centre was passed by the Canadian Parliament in the spring of 1970 and the first meeting of the Board of Governors was held in late October, 1970. The act clearly sets out the objects of the Centre as follows:

"The objects of the Centre are to initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means for applying and adapting scientific, technical and other knowledge to the economic and soil advancement of those regions, and, in carrying out those objects

(1) to enlist the talents of natural and social scientists and technologists of Canada and other countries;

(2) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions required to solve their problems;

(3) to encourage generally the coordination of international development research; and

(4) to foster cooperation in research on development problems between the developed and developing regions for their mutual benefit."

Although established by, and funded primarily by the Government of Canada, the IDRC is not a Canadian Government Agency. Chairman of the Board of Governors is the Rt. Hon. L. B. Pearson; there are ten other Canadian members of the Board and there are ten non-Canadians of whom four are from industrialized countries and six from developing countries. The Centre has independence fully equal to and rather analagous to that of Crown Corporations.

A sum of about 30 million dollars has been provided for the initial five years of the Centre. It is expected that subsequent funding will be on a proportional basis related to Canada's total contribution to international development. Fortunately, the Centre is authorized to accept contributions from individuals, groups, businesses, national or international agencies and from governments. Contributors may specify how their monies are to be used—but the Centre is not obligated to accept all offers as some might be inconsistent with the Centre's programs or beyond its capabilities.

The Centre has designated four areas to constitute the primary program activities during the initial phase of its operation. These areas are:

Agriculture, Food and Nutrition Sciences

The primary objective of work in this area will be to contribute towards improvement of the economic, physical and social well-being of rural peoples. Agricultural (which for this purpose includes fisheries and forestry) food and nutrition research will be undertaken as an integrated and interdisciplinary activity.

Population and Health Sciences

This program will support and encourage research into improved techniques of fertility regulation and will seek to improve the methods by which family planning services are organized. It will support demographic studies, and research into population policy. The Centre will support projects to more effectively provide integrated health care services to rural peoples in low-income countries. In the process of these activities, emphasis will be on the relationship of population growth and health to the development process.

Information Sciences

It is obvious that recorded knowledge is a resource, like men, money and materials, to be applied to improve conditions anywhere. A major objective of IDRC is to work with other national and international bodies to establish a world-wide system for processing, indexing and making readily available to those who need it, information of value to development. The system would involve advanced technology such as computers and micro-photography to marshall the stock of international information about development into much more useful listings than are now available.

Social Sciences and Human Resources

This program of the Centre will support projects that supplement and complement the three foregoing more specific activities. The Centre will support and encourage the exploration of ways which will help nations better provide education and training to rural peoples. It will try to encourage development of local and small industry as service needed for modernization of agriculture and as a means of generating local non-agricultural employment. To this end it is necessary to study the nature and cause of migration from rural areas to choking cities, and find ways to foster the growth of small urban centres. The Centre will take part in the search for better ways and means of transferring technologies appropriate to developing countries to them.

Examples may give a better understanding of the practical types of activities which are being undertaken.

Members of the Board and the officers of the Centre share the realization that population increase is perhaps the greatest hindrance to economic and social improvement in many developing countries. It is therefore no coincidence that the first grant approved by the Centre was in the area of population work. The Barbados has achieved a substantial reduction in birth rate but it is not known how much of that accomplishment is attributable to the activities of the Family Planning Association there. A grant has been made to support an investigation by Bajans, in co-operation with Canadian specialists, aimed at finding an answer to that question. If the Family Planning Association played a significant role in achieving birth reduction in the Barbados, that approach should be a useful one for neighboring countries with similar peoples, cultures and problems to follow. (The Centre desires to support or conduct research the results of which will be broadly applicable—it is an *international-centre!*)

An evolving project, which is likely to be launched very soon, is a comprehensive rural one. In the area concerned, cultivators with very small land holdings, usually less than six acres, are still practicing a traditional type of subsistence agriculture. The project hopes to demonstrate that crop yields can be substantially improved by use of improved varieties, practical pest control practices and soil fertility management. Integrated collection and transport of the produce (to an already assured market) will benefit the cultivators. So too will co-ordinated services for the supply of the necessary inputs. Some local services will be needed to provide some local non-agricultural employment, thereby helping to stem the flight from the area to large urban centres. An educational program including services to family life is also intended. The major requirement of technical personnel will be provided by the host country which is showing enthusiasm by selecting only truly elite professionals to execute the test program. Two very well qualified Canadians will be attached to the project. If the research being undertaken in this project can achieve its objectives, many millions may be ultimately benefited.

The International Development Research Centre is intended to do research that will contribute to improvement of living conditions, especially in developing countries. Most people in such countries are in rural parts and consequently the major focus of IDRC programs is there. However, urban problems need research too and the Centre is supporting, in part, investigations in eight major cities of less developed countries where acute problems exist as a result of migration from rural areas. Because human resources, in the form of qualified professionals with realistic practical experience, are fundamental to improvement and to ultimate self-sufficiency in the new nations, it is Centre policy to seek and encourage research projects where there is a substantial (and preferably dominant) role on the part of local scientists and professionals.

The establishment of the International Development Research Centre, the first institution of its kind, has attracted a good deal of international interest. It is to be hoped, and indeed it is expected, that this pioneering Canadian creation will make significant contributions to improvement of the human condition in the next decade.

JOHN LANE HONOURED

by **Elizabeth Cruickshank,** 2329 Athol Street, Regina

John Lane received the honorary degree of Doctor of Laws at the 1971 spring Convocation of Brandon University.

Members of the Saskatchewan Natural History Society will remember meeting John Lane at his first summer meeting at Moose Mountain Provincial Park in 1959, and at subsequent gatherings. As one of the persons present at the Moose Mountain meet, I have happy personal recollections of an expedition led by Jack Lane along a roadway being cleared. As we stepped over felled tree trunks, Jack's conversation with a skulking wee warbler, with Jack imitating its resigned "toodle-oodle-oo" turtling sounds, brought the curious black-hooded, crepe-breasted Mourning Warbler into sight—a first for his companions. Along the way a Warbling Vireo sang from a nest atop the tallest poplar. "He sings while he's baby-sitting." Such comments and actions made any jaunt with Jack Lane a jolly and informative one.

Fortunate, too, to be a passenger in the Lanes' big yellow station wagon. Skirting the high narrow rocky road along Scissor's Creek at the Rocanville meet, at each rise along the way, our exuberant driver burst into poetry or song. "Up the airy mountain — down the rushy glen" — Or when the road was less interesting and conversation at a standstill, tuneful humming of the classical familiars or some of his own poetic compositions delighted his fellow travellers.

And the historical information that Jack offered his companions! Not just the items from the Historic Sites literature but things like "Nora's grandmother made all the bread for Fort Ellice fortress in the troubled times of its early days". Nora is his understanding helpmate and her grandparents had farmed near the famous fort.

As a guide in Seton's country, Jack

John Lane with some
Brandon Junior Naturalists

Lane, with his smile and enthusiasm for any challenge presenting itself, made a pilgrimage there never to be forgotten.

But Jack Lane is best known to *Blue Jay* readers for his efforts to bring back the bluebirds to the prairie, where there were none in 1959, by establishing nest box lines, 3000 boxes plus to date. Dedicated young persons who assisted in the project begun in Brandon have not only received training and inspiration from their leader, but a greater awareness and appreciation of our natural heritage.

Dr. Lane's field work, as naturalist and conservationist, has been documented in the *Blue Jay*, the *Canadian Field-Naturalist* and Bent's *"Life Histories* (to which he contributed the history of the Baird's Sparrow). A bonus to his nest box line activities was the discovery of the first proven instance of hybridism between Eastern and Mountain Bluebirds. As a result he was invited to deliver a paper on his findings at the A.O.U. meeting in Toronto in 1968. Later he was accepted as a member of that professional association.

The recently-retired railroader is an accomplished nature photographer and has received credits for assisting in the production of films and recording of songs of prairie birdlife. He has some other firsts to his credit: first to spot the Cattle Egret in western Canada and first to find nests of the Yellow Rail in Manitoba.

For years he has worked in a voluntary capacity for the B. J. Hale's Museum of Natural History at Brandon University. In January this year he was appointed officially its Curator.

In June the Shikar-Safari Club International presented him with a certificate at Clear Lake naming him "Conservationist of the Year." This club consists of 200 members from all over the world who are sportsmen and game conservationists.

Offering congratulations to Dr. Lane on his many achievements we can all share in the satisfaction that another of our members has received public recognition for his devoted efforts to preserve the environment. Our good wishes and hopes for continued success go to one who has made so rich a contribution to his province and to Western Canada.

Letters and Notes

TWELVE-YEAR-OLD GROSBEAK PET

My account begins on the Labour Day weekend of 1959. We were returning from a camping trip to a northern lake, and had just stopped our car in our driveway when the children, always the first ones out, heard a commotion in our corn patch. A closer investigation showed the cause to be a female Rose-breasted Grosbeak with a cat in hot pursuit. We chased away the cat and upon capturing the bird found she had a broken wing. We bandaged the wing and placed her in a large cardboard box for the night. Next day, she showed interest in food and picked at lettuce leaves and budgie seed.

In the following months "Rosy", as we had by now named her, became a real pet. She would eat anything, honey and chocolate being but a few of her delights. We had found it impossible to keep her wing bandage on, and, as a result, her wing did not heal correctly. She learned to fly again, but only short distances, and seemed to feel more secure in the cage we had made for her. She would fly into a tree for awhile, but always returned to the cage. Even though we often left the cage door open, she rarely ventured out. During the first few years she became very restless in the spring and fall, especially during the night, and this restlessness we attributed to the migration instinct.

We have a cottage north of Prince Albert, Saskatchewan, and our trips there would see quite a menagerie being loaded into our car: One bird and the girls' two pet rabbits. Our grosbeak learned to twitter cheerily to the sound of a boiling kettle or the hum of the vacuum cleaner. She became very wise, and the sound of a fly-swatter made her most excited, for she knew the result was a tasty fly for her.

We have moved twice since we found her—once to Medicine Hat, Alberta, and then to Dunnville, Ontario. Our bird has moved with us. Our last 2300 mile trek I believe she actually enjoyed because of the extra attention she got. She would sit in her cage and sing while we were travelling.

Now it is May, 1971 and we still have as a resident one female Rose-breasted Grosbeak, whose ripe old age of 12 we believe must be pretty close to a record. We have enjoyed her, and hope that the extension of her lfe has offset some of the unhappiness of captivity.—*W. Trevor Shepstone,* 114 Kneider Ave., Dunnville.

AN ENCOUNTER WITH A BAT

On June 14 of this year my father found a bat in the T.C.P.L. compressor station while working. I was at school at the time but when I got home at four, mother showed it to me. We decided to put it in the small inside cage of my guinea pigs. As I opened the box it was in, I heard a snapping or clicking sound. We figured out that this was done by the bat's teeth hitting together. It had about a foot wingspan. As I got near the clicking noise started again. We decided that since it didn't look too good and was more than likely scared we had better take it out of the cage. We put it out on the grass, left is alone and went back to work. About fifteen minutes later we came for a peek but it was gone. At least I know what a bat looks like now.—*Jim Elliott* (Junior Naturalist), Box 550, Grenfell.

PLEA FOR PROTECTION OF RAPTORIAL BIRDS

by **Glen A. Fox**, 65 Grange Street, Guelph, Ontario

On March 10, 1971 "a bill to extend to hawks and owls the protection now accorded to Bald and Golden Eagles" was introduced in the House of Representatives of the United States Congress.

What does this mean in terms of the plight of the Peregrine Falcon in North America? First, if passed, it will pressure the Canadian government to follow suit with some form of protective legislation. Canada has within her boundaries the bulk of breeding Peregrines and other endangered raptors. Second, the bill in its present form would make private ownership of hawks and owls illegal in 20 to 30 years, and falconry is not provided for within the bill.

What is wrong with such legislation? I recently prepared a proposal for the protection and management of birds of prey in Canada for a university course in Wildlife Management. What I proposed brought mixed reactions from classmates, conservationists, and professional biologists. Since it was written, I have read similar proposals by others (Nelson, 1970; Smith, 1970; Cade, 1971; and Smith and Halliday, 1971). Because concerned individuals and societies will have some opportunity to direct the form which protective legislation will

Photo by Glen Fox

Pigeon Hawk

take in Canada, I feel it is in order to outline what my proposals are.

There is no doubt that raptorial birds should be protected on a national and, if possible, international basis. Protection or management—that is the key question. The bill before the U.S. Congress is an example of the "complete protection movement." The other point of view is that in our chemically contaminated environment these birds will have little chance of recovery even if given total protection. Management is the key—management that provides protection, but which at the same time provides for a controlled harvest of nestlings for captive breeding stock *and* for falconry purposes.

Many will immediately see the need for maintaining captive breeding stocks and the usefulness of these birds in producing birds for reintroduction programs. But, why falconry? Falconers as a group have provided more knowledge about raptorial birds than any other group and have been very active in public education programs. This is not accomplished without access to birds for such uses. A very small, radical minority of falconers put the sport of falconry before the bird, and this minority too must be provided with a legal means of taking birds or they certainly will go to extremes in taking their illegal harvest; in so doing, they will defeat all other management efforts.

What can falconry do for the Peregrine and other endangered raptors? First, falconers will be able to provide stock for reintroductions. Second, their trained birds will be frequently used in effective public education programs—without which protective legislation and management efforts will be to no avail. Recently, at the Canadian National Sportsman's Show in Toronto, some 5000 people were informed and many "converted" by such an educational display—many seeing a Peregrine for the first time. Such exposure is the only way the public will gain that respect and concern which is necessary to ensure the preservation of wildlife. Third, and probably most important, falconry can be used as a management technique for increasing the survival rate of immature falcons. If a controlled number of nestling falcons were removed from various segments of the population each year for falconry purposes, with the provision that they *must* be released at the end of their second winter, in time for the spring migration, the wild populations would benefit from this addition to their breeding stock.

How? It has been estimated for the Peregrine Falcon and Prairie Falcon that of every 100 young fledged, only 34 survive to the end of their second year, or to breeding age. The remaining 66 might be considered as harvestable surplus which may be used for falconry. Survival in the hands of competent falconers is in the order of at least 70 percent. Thus, by holding falcons for falconry purposes during their first two years of life, we can increase survival to breeding age of any cohort to over 50 percent, with the birds returned to the wild state with very low pollutant-loads and thus far more likely to produce offspring.

Protective legislation should have the following objectives:

1. To protect all raptorial birds in Canada, on a year-round basis, from all forms of destruction by man or his agents.

2. To conduct a nation-wide inventory of raptor populations and their productivity, and to initiate a central repository for information concerning these populations, available to all management agencies.
3. To develop and maintain captive, reproducing populations for reintroduction.
4. To legalize and control the sport of falconry, recognizing it as a valuable field sport and utilizing it as a management tool.
5. To promote greater public understanding of the status and value of raptors, so that it will be generally recognized that it is important to enforce protective legislation strictly, and to introduce management of rare species.

As Cade (1971) so aptly put it, "in any case, protection, based on reason rather than hysteria, and propagation, based on scientific methods rather than trial and error, should go hand in hand as the two chief measures for promoting the survival of the Peregrine and other birds of prey."

LITERATURE CITED

Cade, T. J. 1971. Survival of the Peregrine Falcon: protection or management? Raptor Research News 5(2):83-87.

Nelson, R. W. 1970. Observations on the decline and survival of the Peregrine Falcon. Canadian Field-Naturalist 84(3):313-319.

Smith, W. G. 1970. The management and conservation of raptorial birds in British Columbia. A submission to the 1970 Federal-Provincial Wildlife Conference, Yellow Knife, Northwest Territories.

Smith, W. G., and D. R. Halliday. 1971. Comments respecting the management of raptorial birds in British Columbia. Presented at the 1971 North American Wildlife Conference.

EAGLES POISONED

The U.S. Department of the Interior, News Release for June 19, 1971, explains a recent case of poisoning of 22 Bald and Golden Eagles in Wyoming. Ironically, the five men arrested in connection with the case were not charged with poisoning eagles but with hunting out of season. Several antelope carcasses had been baited with thallium sulfate and presumably set out for coyotes; and it was the use of the antelope (killed out of season) which allowed the authorities to prosecute. If domestic animals had been baited no charge could have been laid nor would the poisoning of the eagles which in this particular connection was unintentional have constituted a felony.

Obviously laws in U.S.A. and in Canada must be changed so that endangered species and all wildlife will receive more protection.

Photo by Al Grass

Bald Eagle

COYOTES AND 1080

Several Canadians have written letters this year protesting the use of poison to kill coyotes or other animals. As an example of this protest we reprint Dr. R. T. Ogilvie's letter which appeared in *The Calgary Field Naturalist*, June, 1971.

"The use of Compound 1080 for the control of coyotes in southwestern Alberta is of serious concern to naturalists.

Compound 1080 (sodium fluoroacetate) is extremely toxic; its lethal effects on animals is very great. In addition it has high stability: it retains its poisonous properties for a very long time. Because of this high toxicity many other kinds of animals are poisoned besides the animal for which its use was intended. Moreover, it is known to cause secondary poisoning in many kinds of animals as a result of them feeding on the animals which have been killed by the poisoned bait. Dogs, and various birds, rodents, carnivores, carrion eaters and scavengers, have all been killed from the use of 1080 in poisoned bait. Because of its lack of specificity and the consequent danger to other wildlife, its use cannot be condoned for "pest" control.

There is another aspect which is to be seriously criticized: the practice of killing native predators. Ecologists know that predator control is very disruptive to the natural balance within the carnivore - herbivore - plant food chain. The reduction of a predator such as the coyote results in its normal prey *not* being controlled. The natural prey of the coyote such as mice, voles, ground squirrels, rodents, certain birds, and even insects, will increase when the predator is reduced or eliminated.

Because of the high toxicity and stability and the lack of specificity, the use of Compound 1080 for pest control is to be severely criticised: its use should not be permitted. And the entire question of predator control must be re-considered in the light of modern knowledge of the ecological relationships in food chains."

ECOLOGICAL RESERVES

The province of British Columbia leads, in Canada, in the setting aside and guaranteeing of protection to a number of diverse natural areas. Though many individuals have been active in forming the entire programme, it is Dr. V. Krajina, ecologist, University of British Columbia and member of the International Biological Programme (IBP-CT) who has convinced the provincial government that certain limited areas should be preserved in as natural a state as possible.

The Honourable R. G. Williston, Minister of Lands, Forests, and Water Resources also deserves commendation for introducing the *Ecological Reserves Act* during the 1971 Session of the British Columbia Legislature. The act recognizes that British Columbia has a wide variety of climate and topography and that it is highly desirable to reserve areas of distinctive ecosystems for present and future study. The act which is now law resolves to select and preserve 100 areas by the end of the year 1975.

On May 6, 1971, the Government approved 27 ecological reserves. These areas are not to be used as recreational areas; rather, the flora and fauna within them will be completely protected. Six of the ecological reserves so far designated are in Provincial Parks, where they are classed as nature conservancy areas.

It is to be hoped that other provincial governments will follow the example of British Columbia and set aside ecological reserves to supplement provincial and national parks and wilderness areas. Unique habitats and the genetic diversity of the organisms living within them must be preserved as an essential safeguard for the future.

NATIONAL GRASSLAND PARK

Dr. R. T. Ogilvie, President of the Calgary Field Naturalists Society recently sent the following letter to the Honourable Jean Chrétien, Minister of Indian Affairs and Northern Development. The letter is printed in the June, 1971, *The Calgary Field Naturalist* and we reprint it here because there is an active expansion of National Parks (see article by Hon. J. Chrétien, in *Park News*, March, 1971) and eventually there will be a grassland park in Canada.

"The Calgary Field Naturalists' Society is actively concerned with land conservation, and to this end is interested in the present and future status of the Department of Defense Suffield

Experimental Range in southeastern Alberta.

The Suffield Range is one of the largest remaining areas of native grassland in western Canada. It is of immense biological and ecological value because it contains all of the original communities of native plants and animals. Therefore, it is of critical importance that this unique area of prairie ecosystems be preserved, and we are concerned that this should be done if and when the Department of National Defense tenure of the land is terminated. If at that time this land is used for livestock grazing or cultivated for grain or irrigation farming, it would be an irreparable loss to the ecological heritage of the people of Canada.

We wish to recommend that this area be given strong consideration as a Prairie National Park, as a means of preserving its total ecology. We would urge that negotiations be initiated for the transfer of this land to your department, for the purpose of establishing it as a National Park."

MAN AND THE BIOSPHERE

The General Conference of Unesco has launched a long-term inter-governmental and interdisciplinary program on Man and the Biosphere. The substance of the program, which will be supervised by the International Coordinating Council, is described in a Unesco document (16 C 78). Canada has agreed to participate in the program and it is hoped that the program will be actively operational after the Stockholm Conference in 1972 when 130 nations will meet in the first global conference to translate environmental concern into action.

The Steering Committee for MAB in Canada has suggested a number of major projects which, it is hoped, will receive real co-operation among social, natural and physical scientists in governments, universities, industries and other organizations. The number of Canadian projects is to be limited and these should deal with problems of land and water management and methods of preserving, improving and maintaining a desirable human environment.

Project proposals may be submitted to Dr. W. J. Turnock, Secretary for the Steering Committee for MAB in Canada (Dr. Turnock, Secretariat for Science Policy and Technology, Privy Council Office, Ottawa K1AOA3). There are 31 proposed research themes and all deal with the natural environment or ways in which the activities of man alter the environment. Two themes under the general heading of conservation and protection are of special interest to members of natural history societies. These are "Global network of protected areas" and "conservation of wild species."

The Unesco document (16 C 78), commenting on the need for a worldwide network of protected areas, emphasizes that existing national parks represent only a small part of the ecosystems of the world. Many countries have inadequate resources for the setting aside and protection of natural areas. Indeed, most countries have not realized the aesthetic, cultural, educational and economic importance of natural areas and as a result have not made adequate plans for their protection. Hopefully some direction and assistance for immediate action will be given by the Man and the Biosphere Program.

The Unesco document emphasizes that "it is important that the widest possible diversity of plant and animal species be maintained (1) for the ecological health and continued functioning of the biosphere; (2) for [their] educational, scientific and recreational values; (3) for direct use as natural resources; and (4) because we are as yet unaware of the long-term importance of most of these species to man's well-being and survival."

It is obvious that an objective of this nature is of vital concern to all of us. Individually we can do something by writing letters and by talking to others about the importance of such an aim. As a society we should be able to propose and carry out an MAB project but the number of projects is limited. We should have one Canadian natural history society which speaks for all naturalists in Canada. The Canadian Nature Federation promises to be such a national organization. Let us support it and acquire a national voice and at the same time contribute to international natural history by carrying out worthwhile conservation projects.

COMMENTS ON THE EFFECTS OF THE BENNETT DAM

The nature of *The Blue Jay* magazine makes it seem imperative to correct impressions left by a letter in the June, 1971, issue, headed "Bennett Dam." I have reason to believe that the critical conclusion arrived at by Mr. Symons was based on surmise and insufficient evidence.

Depending on the time when the informant visited the dam, in 1970, the observation on floating logs and débris was undoubtedly true. All reservoirs behind all dams experience this. In the case of the Bennett Dam, clearance of the future Lake Williston basin was projected and contracted for, and an enormous automated sawmill at Mackenzie was built to take care of the salvageable timber. The building of the dam proceeded with such speed that the clearing job was not completed. The contractor also had difficulties. The only way in which the basin could have been completely denuded was to burn it and, hopefully, keep the fire from spreading. The cries of anguish at that waste would have been extreme. In that situation, the lake would have been clogged with unsalvageable burned logs and ash.

Besides, nature took a hand. The coffer dam and diversion tunnels were built to contain the highest recorded water-flow. In the spring of 1965, the greatest high water in history completely filled the reservoir and all but topped the coffer dam which had been raised a quarter as high again in frantic haste to avoid its being swept away. In spite of all the water that was impounded, the tributaries of the Peace between the dam and Taylor (only fifty miles downstream) contributed to phenomenal high water under the Peace River bridge there.

Too many people, even local residents, are unfamiliar with the river system. The news media do not inform them that the Finlay and Parsnip rivers are not the only tributaries of the Peace that affect the Athabasca delta. A map of the Peace River drainage basin shows that below the dam nine major tributaries enter from the North. Eleven enter from the south side delivering water from the Rocky mountain area near Mt. Robson.

Flow of all these tributaries depends on four things: (a) snow pack in the mountains; (b) and (c) hot weather and/or heavy rains in June to bring the snowpack down suddenly; (d) annual precipitation affecting the amount of water the soil can absorb.

Furthermore, ask "What does the Peace River empty into?" and nine out of ten people, in my experience, will answer "Lake Athabasca", and many will add, in tone or word, "of course!" Any map will show that this is untrue: the Peace joins the Rocher River which drains Lake Athabasca to form the Slave River some miles downstream from the lake. It is true that the marshy conditions in the area *at times* make it difficult to see the situation. William Fletcher Bredin, a long-time trader and river-transportation man, with sufficient competence to be called before a Select Committee of the Senate inquiring into the resources of the Mackenzie, commented on this in an interview recorded in the publication *Alberta Historical Review* (Summer 1971). In his reminiscences, speaking of the river which drains Lake Athabasca into the Slave river, he considered it noteworthy that "at another time when the Peace River was higher than Lake Athabasca, I came through this river when there was a reverse current." This shows that the combination of circumstances referred to in the preceding paragraph *occasionally* contributes Peace River water to Lake Athabasca.

According to my reading on the subject, confirmed by an elderly Dawson Creek resident who lived and trapped at Chipewyan for many years, what has happened periodically, but not yearly, is this: if a high flood peak of the Peace arrives just before or simultaneously with a similar flood peak from the Athabasca, the current of the Peace acts as a sort of hydraulic ram, holding the Athabasca back and flooding the marshes. In the area, the basement or bed rock comes to the surface, deeply gouged and packed by glaciers. Once filled, these undrained marshes tend to remain waterfilled if replenished by normal rainfall. Many times in the past, my informant says, the marshes have dried up, only to be flooded again.

For the last three years the whole drainage basin has been abnormally dry. Snowpack has been scanty. The Athabasca and Smoky Rivers have been low. The Bennett Dam has not produced the drought.

In this summer of 1971 extremely prolonged and heavy rains deluged the Peace drainage basin. Suddenly the news media carried daily, almost hourly, bulletins about the *floods* around Lesser Slave Lake which drains into the Athabasca River. As these notes are being written (early August, 1971), it is announced that the peaks of the Peace and Athabasca will arrive at the delta region simultaneously. The marshes are going to be flooded, yet the Peace above Taylor was not in flood because it was controlled by the dam. Had the reservoir been drained when certain people were demanding it, the marshes would not have been flooded, unless the Athabasca River co-operated!

I have also observed the débris above the Bennett Dam. In the spring of 1970 a great amount of débris had accumulated. By September enough salvageable logs had been conveyed to the mill at Mackenzie to cut 900,000,000 board feet of saleable lumber. Friends of ours had put their motor boat in above the dam and navigated it without incident as far as former Finlay Forks. Deadfall from the tributary streams, in wooded country, will continue every spring, naturally.

Symons' comment on the existence of "embarrassing reductions in water supplies to towns along the Peace" is misleading because there is only one Peace River Town. As it is downstream from the confluence of the large Smoky River with the Peace, its water supply is not controlled solely by the dam. When a shortage did occur, all the down-stream tributaries we mentioned before were phenomenally low as the result of prolonged drought. That these tributaries alone can cause embarrassing *highwater* conditions was demonstrated in summer 1971 when the Clayhurst ferry north of Dawson Creek, and comparatively near the dam, had to be taken out for an extended period.

Another point which was not mentioned in *The Blue Jay* article has been belaboured by the news media: the economic status of the trappers and métis of the delta. Nobody mentions the fact that all trapping-based economy is depressed because of the poor market for furs.

It might be interesting to note that once in the memory of man the Peace River ran dry, leaving men in a canoe stranded in what had been mid-channel. This was reported in J. G. McGregor's book *Land of Twelve-Foot Davis* and happened decades before the construction of the Bennett Dam.

The writer feels that lack of information and hastily drawn conclusions do a great deal of harm to the cause of pollution and environmental control. It is important to weigh all factors before judging by appearances and incomplete reports.—*Dorthea Horton Calverley*, Dawson Creek, B.C.

Editor's Note: Mrs. Calverley, a long-time *Blue Jay* subscriber, is an outdoor enthusiast and a strong conservationist. She mourns the loss of certain beauty spots, e.g. the head of the Peace River Canyon, but she feels that we must be fair in assessing the effect of the Bennett Dam on the environment. She has lived in the Dawson Creek area since 1934 and has been a regular visitor to Hudson's

Hope. In an accompanying letter she commends Mr. Symons for his concern, for she knows him as a respected former resident of the area.

NATURAL MORTALITY AMONG CLIFF SWALLOWS

At Peace River, Alberta, during the evening of July 25, 1966, James Bartonek, David Trauger and I noticed some unusual activity in a breeding colony of Cliff Swallows *(Petrochelidon pyrrhonota)*. These birds were nesting under a bridge across a small creek just south of the business district. They were calling excitedly and milling over mud flats that had recently been exposed along the creek bottom. Closer inspection revealed about 40 of the swallows stranded in the sticky mud. Many were already dead, apparently succumbing because of exhaustion and exposure. Wing marks indicated that several of the birds had struggled for a distance of at least 5 feet across the mud while attempting to free themselves. We rescued several of the stranded birds by washing off the mud and drying them. When released, the birds appeared to fly normally.—*Harold Kantrud*, Northern Prairie Wildlife Research Center, Jamestown, North Dakota.

LATE NESTING BARN SWALLOW

On September 9, 1967, a pair of Barn Swallows were noted constructing a nest inside a granary four miles south of Raymore, Saskatchewan. On September 15 when the nest was checked, it contained three eggs which were being incubated.

The adults were seen carrying food to the nest on October 2 and upon checking it again three young, which were already several days old, were found. The young fledged on October 17, and were observed flying about the farmyard until October 19 when both adults and juveniles disappeared and were not noted again.

This nest record is over a month later than any other nest record which I have for this area. The unusually warm weather which occurred throughout the month of September may have accounted for such an extremely late nesting.—*Wayne C. Harris*, Box 93, Raymore.

PURPLE MARTIN STUDY

Since the Purple Martin now nests almost exclusively in man-made bird houses we can easily observe it and assess some of the effects that man has on the environment. A long-term study of population size of the bird, for instance, will be a valuable part of any such attempted assessment. A study of the Purple Martin will also help to answer certain other questions about the bird and its relationship with its nest-hole competitors. If you have Purple Martins and if you wish to receive the annual summary of the findings of the study, write to Dr. J. A. Jackson, Department of Zoology, Mississippi State University, State College, Ms. 39762.

DELTA

Early in 1971 Robert Winthrop, President, North American Wildlife Foundation, announced that Dr. Robert E. Jones of the University of Delaware, had been selected to succeed Dr. H. Albert Hochbaum as the director of the Delta Waterfowl Research Station. Dr. Jones was to assume responsibility for the Delta programme on May 1, 1971. Inquiries concerning the Station's research, graduate training and other activities may be sent to Dr. Jones, Delta Waterfowl Research Station, Portage la Prairie, Manitoba.

NIKON PHOTO CONTEST

The third annual international Nikon Photo Contest is open to all owners of Nikon Cameras. Each participant may submit up to five black and white prints and five color prints or slides. Unmounted prints must range in size from 8"x10" to 11"x14". Any subject will qualify for entry. Entry forms may be obtained from your Nikon dealer and entries must be submitted before October 31, 1971.

ALBERTA PICTURES

Two fine exhibitions were officially opened June 20, 1971, in the Provincial Museum and Archives of Alberta, Edmonton, by Dr. Walter Trost, Chairman of the Environment Conservation Authority. The opening of these exhibits at this time gave botanists who were attending the joint inter-disciplinary meetings of the Canadian Botanical Association and the American Institute of Biological Sciences an additional incentive to visit the museum.

One exhibit was a selection of excellent photographs by Dr. Cyril Hampson which gave a vivid impression of the beauty of Alberta's natural heritage. (Readers of the *Blue Jay* will remember Cy Hampson photos. Look, for example, at the June 1959 issue.)

The other exhibit featured Annora Brown watercolor paintings of native Alberta plants. The paintings on display are part of the collection of 200 painted by Annora Brown for the Glenbow Alberta Institute, Calgary. (Again, readers may remember the review of Annora Brown's book *Old Man's Garden* which was printed in the *Blue Jay*, June 1954.)

We enjoyed these two fine exhibits June 24, 1971, and I am sure that many Edmonton residents and tourists have marvelled at the beauty captured in each picture.—*George F. Ledingham*, Regina.

ORNITHOLOGICAL CONGRESS

The XVI International Ornithological Congress will be held, August 12-17, 1974, in Canberra, Australia. Further information about major and minor excursions or about scientific sessions or exhibits may be obtained from Dr. H. J. Frith, Secretary-General of the Congress, P.O. Box 84, Lyneham, Australia, 2602.

NEXT BLUE JAY

Please submit articles and photographs for the December, 1971, *Blue Jay* before October 15 if possible.—*Ed.*

WILDCAT HILL WILDERNESS AREA VISITED

The Regina Natural History Society commenced its 1971 summer field trips with a Victoria Day weekend trip in the Wildcat Hill Wilderness Area. We Regina naturalists were joined by naturalists from Moose Jaw and Saskatoon, and were especially happy to have Gordon Silversides, President of the Saskatchewan Natural History Society, with us. Altogether there were 12 cars and about 40 people on this outing. For most, it was the first visit to the area since the creation of the Wildcat Hill Wilderness Area.

Base camp was established at the Department of Natural Resources' Fir River Cabin. Here there was a large grassy area for trailers and for camping. Each group made its own way to this point, and was free to come and go as it pleased.

During the weekend we drove to the Red Earth Indian Reserve located on an island where there are many large elm trees. The Indians there have log cabins and iron pots suspended from tripods over log fires. Anthropologist Meyer showed us the cemetery (with graves decorated with flowers and ribbons), cultivated rice fields and various other points of interest. We also went to visit Lloyd Stonehouse, a trapper who has lived on the edge of the hills for over 30 years; we enjoyed his anecdotes about grizzly bears and cougars.

On Sunday we drove over the new Shoal Lake Road which now completes the ring road around the Pasquia Hills. From this road above the Cumberland Marsh the hills rise some 1800 feet. On the sandy shoulders of the road we saw the tracks of wolf, deer, moose, coyote, mink and black bear. We made numerous stops along the way and left the road to hike on the

Alaxawie Nature Trail. The next day we visited the Pasquia Regional Park and also dropped in for a word with Joe Fournier who has a museum of his own. Fournier, incidentally, is the man who supplied the excellent cougar and moose specimens displayed in the Saskatchewan Museum of Natural History in Regina.

Throughout the weekend the weather was perfect and we enjoyed the sound of chickadees on every side and the sight of light green aspen, dark spruce and colorful flowers. The birders recorded many birds which are listed elsewhere (see p. 130 this *Blue Jay*).

Three weeks later when I visited Lobstick Fire Tower in the northeast part of the Pasquia Hills, I approached the cabin at dusk and heard the whip-poor-will. The bird hovered at chest height facing me and occasionally sat on a fence post. This seldom reported bird seems to have found a home in Saskatchewan's Wildcat Hill Wilderness Area.—*Thomas White,* Regina.

SASKATCHEWAN NATURAL HISTORY SOCIETY

ANNUAL MEETING, October 15-16, 1971

The 1971 Annual Meeting of the Saskatchewan Natural History Society will be held on October 15 and 16 in Moose Jaw. Hosts for the meeting will be the Moose Jaw Natural History Society with Carl Ellis, President.

REGISTRATION: Friday evening, October 15. Art Museum (next to the library on Athabasca Street East). Registration fee — $1.00.

BUSINESS AND PROGRAMME SESSIONS: Saturday morning and afternoon, October 16, Art Museum. In addition to the regular business and programme, the Board of Directors will be asking members to consider what the Society's role should be in the newly-formed Canadian Nature Federation, and it is hoped that someone from the Federation can address the meeting.

ANNUAL BANQUET AND ADDRESS: The dinner will be held in the Hall at the Co-operative Store, 500 First Avenue N.W. (Smorgasbord tickets— $3.00). Guest speaker will be **Richard Fyfe,** Canadian Wildlife Service, Edmonton.

RESOLUTIONS: The Resolutions Chairman J. Wedgwood would appreciate any serious thought you can give to resolutions to be presented at the meeting. Write or telephone him if possible before the meeting at 610 Leslie Avenue, Saskatoon.

NOMINATIONS: Nominations for elected positions on the Board of Directors should be submitted to the Nominations Chairman, Margaret Belcher, 2601 Winnipeg Street, Regina.

FURTHER INFORMATION: Available from Carl Ellis, President M.J.N.H.S., 820 Valley View Drive, Moose Jaw, or Miss Patricia Kern, Corresponding Secretary, S.N.H.S., 1053 Chestnut Avenue, Moose Jaw.

THE SASKATCHEWAN NATURAL HISTORY SOCIETY

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THE BLUE JAY

Blue Jay Editors: George F. Ledingham; **Assistant Editors:** Margaret Belcher, Robert W. Nero; **Junior Naturalists:** Joyce Deutscher.

All items for publication should be submitted to George F. Ledingham, Editor, 2335 Athol Street, Regina.

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